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practical ideas for self-reliant living

April/May/June 2026

Issue #204

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Subscriptions:

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Identification statement:

Backwoods Home Magazine (ISSN No. 1050-9712) is published quarterly (four times a year) by *Self-Reliance Publications LLC*, 1299 NW 29th St., Corvallis, OR 97330. POSTMASTER: Send address changes to *Backwoods Home Magazine*, PO Box 308, Philomath, OR 97370.

Published in Corvallis, Oregon, U.S.A.

DEPARTMENTS

- 6 **Publisher's Note**
- 7 **Editorial:** *Medical assistance in dying*
- 24 **Homestead Humbles & Fumbles:**
Learn to prepare for the unexpected
- 41 **The Irreverent Joke Page**
- 65 **Coloring page:** *Watering trough*
- 66 **Poems**
- 68 **Kids' corner:**
Make your own nature-dyed eggs
- 70 **Country Moments**
- 81 **Lenie in the kitchen:** *Gisela's lentil soup*
- 84 **Ask Jackie:** *Drying pole beans, living with wildlife, homemade dog food, etc.*
- 100 **Ayoob on Firearms:**
How to hold your firearm
- 105 **Letters**
- 106 **My Back Porch:**
Getting more patriotic with age
- 108 **The Last Word:** *The man who believed
"... all men are created equal ..."*
- 110-112 **BHM bookstore**
- 113-114 **Order form**
- ??? **Where's Country Cat?**



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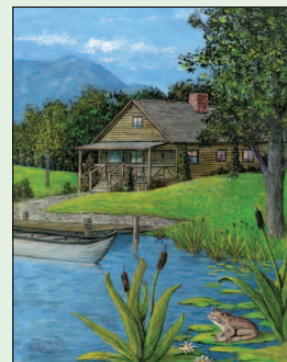


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ABOUT THE COVER

Earlier, Husband got up at dawn on this beautiful spring day, dug up some worms, grabbed his favorite fishing rod, and poured fresh, hot coffee into a thermos. Now, Wife is cooking the fresh, fileted trout. She dusted them with flour, slid them into an egg wash, dipped them in cornmeal coating, and fried them until golden and crispy. Delicious!



FEATURES

Self-reliance

- 18 **Snakes: An honest look at a misunderstood animal**
By Jaeger Everett
- 58 **Bringing back the prairie**
By Jeffrey Miller
- 98 **Three ways to produce a functional blowgun**
By L. Woodrow Ross

Farm and garden

- 8 **Ways to drought proof your garden**
By Jordan Charbonneau
- 13 **How to make an easy and inexpensive rhubarb forcer**
By Dawn Lamoureux-Crocker
- 16 **Successfully murder squash borers**
By Jenny Tennant
- 48 **How to safely pull a calf**
By Heather Smith Thomas
- 54 **Hogging it up**
By Tanya Kelley
- 76 **Hawaiian Poha berries**
By Lisa Nourse
- 82 **Growing and loving parsnips**
By Jenny Tennant

Building

- 26 **Making a rainwater-fed watering hole**
By Joe Mooney
- 32 **How to make a picnic table with a tile top**
By Jaeger Everett
- 42 **Building a milking stall and calf pen**
By Don Lewis

Americana

- 74 **A list of facts and trivia you probably didn't learn in school**
By O.E. MacDougal

Food and recipes

- 88 **Savory stuffed wild grape leaves**
By Jim Capossela
- 95 **Italian scarpazzone**
By Mary Bryant Shrader



Publisher's Note

Death before “slop” in *BHM*

Between issues, we had a few subscription cancellations over our “Science of Death” article by Jaeger Everett in the last issue. Some complained of not “wanting to see that” in the magazine. This issue’s “My View” column by Massad Ayoob may also upset some readers since it discusses MAID (Medical Assistance in Dying).

While I don’t enjoy seeing subscribers leave, those types of letters confirm my belief that we’re publishing the correct content. We’re not a fluff magazine trying to appease everyone’s sensibilities. We publish serious articles and don’t serve just vanilla ice cream, but all the flavors, including those that taste a bit weird to many. My suggestion is to just skip an article that bothers you, and read the rest. We can’t just serve up vanilla. That would be boring.

However, I do have my own bias against bad content. It’s the rising amount of AI-generated “slop” that is being served up online and sometimes submitted to this magazine as an article. Merriam-Webster has named “slop” 2025’s word of the year. Before AI, slop meant “food waste fed to

animals,” but now Merriam-Webster defines it as “digital content of low quality that is produced usually in quantity by means of AI.” Low effort writing and useless drivel has been around forever, but there’s much more of it now that AI is so widespread. But you won’t find it in this magazine because AI-generated prose is relatively easy to spot. The writing is not just inferior to what our writers produce, but it often contains incorrect information gleaned from other misinformed articles on the internet.

I’m not criticizing all uses for AI. I’ve used Anthropic’s Claude, Google’s Gemini, and OpenAI’s ChatGPT to help me write code for our database and website, but the prose it generates is nothing compared to our writers who live and breathe the homestead lifestyle and our editors who polish their ideas. I like Merriam-Webster’s new definition of “slop.” — **Sam Duffy**



Sam Duffy

Dorothy Ainsworth’s remarkable life

Dorothy Ainsworth, who wrote and photographed magnificent construction articles and many others for *Backwoods Home Magazine* for 30 years, died recently. She was 83. She first appeared in our pages in 1994 (*Issue #27*) with an article about the beautiful log studio she had



Dorothy was a natural writer, photographer, and builder.

built and the larger main log home she was building on her 10-acre Ashland, Oregon property. In 1995 the main house burned down (*Issue #38*) just before completion, so she rebuilt and documented it with articles in the magazine until she finished in 1998 (*Issue #50*). Many of the materials she used were either scrounged or cut down from the local forest under permits. Our readers loved the journey and sent in hundreds of letters.

I got to know Dorothy well and admired her ability to engineer her own projects, build them mostly by herself, and document and explain the process with clear, succinct prose and wonderful photos. She was a natural writer, photographer, and engineer/builder. She worked part-time as a waitress when I met her, and I encouraged her to write all she could for us so I could pay her to write more. It became a good partnership for both us and the readers.

Her final article appeared in 2024 (*Issue #198*). It was about getting around in a golf cart as you get older. At age 80, she told me she was retiring. She had been struggling with Parkinson’s disease for years.

Dorothy chronicled her building projects, life lessons, and adventures on her website, dorothyainsworth.com. Her excellent book, *The House That Dorothy Built: A Story of Tragedy and Triumph*, is available on Amazon.com. She was preceded in death by her grandson, Zane Cruz, and is survived by her two children, Cynthia Smalley and Eric Ainsworth. — **Dave Duffy**

My view

Medical assistance in dying

Death is the inevitable end of the cycle of life. Rural people, especially those who raise their own livestock or hunt and fish for subsistence, understand that better than most. Not for nothing did this magazine publish Jaeger Everett's informative article, "Science of Death" in *Issue #203, Jan/Feb/March 2026*. Yet for much of society the end stage of life is so horrible to contemplate that it is kept at arm's length. The very word "death" makes some people wince.

It's hard to think of a pleasant last moment, devoid of pain, fear, and terrifying delusion. In the HBO's popular "Game of Thrones" series, the wise and bitter dwarf Tyrion is asked by a captor how he wants to die. He replies. "At age 80, with a belly full of wine ..." Few of us will be so fortunate, and our octogenarian subscribers reading this will probably think, "Wait a damn minute!"

A part of medical tradition involves physicians sympathetic to their terminally ill patients having to endure agonizing end-of-life suffering, so they discreetly help them along with some extra pain meds or sleep aids. Intended with genuine benevolence, it has been called "medically assisted suicide." That term will irritate many of today's medical professionals. The description in vogue today is MAID — Medical Assistance In Dying.

And MAID has come out of the closet. Terminology has become more specific. Today, "assisted suicide" is generally meant to describe medical professionals giving the patient life-ending medication to self-administer. Many feel that for a patient already diagnosed as terminal, "suicide" is a less-appropriate term than "choice of manner of death," and that "suicide" only applies to inappropriate self-destruction.

It was inevitable that the concept would be controversial. One version of the physician's Hippocratic Oath itself forbids it: "I will not give a drug that is deadly to anyone if asked (for it), nor will I suggest the way to such a counsel." Yet physicians have been doing exactly that since the dawn of the medical profession.

It has been said that the suicide rate is higher in rural areas as opposed to urban populations. If that is indeed the case, it is because self-sufficient people who raise animals become more pragmatic in their understanding of the cycle of birth to death. They allow neither a wounded game animal nor a horse with an irreparable broken leg to suffer. They "put the creature out of its misery," and it is a short step to applying that to human beings who suffer incurably and/or are already in the process of a long, agonizing certain death.

In suicide prevention, one seldom hears the term "rational suicide," as if it has been forbidden by mutual consent. Yet mercy killing, whether by the victim's own hand or that of a third party has been part of the human existence almost as long as the epoch of mankind. For the most part, though, assisted death is associated with terminal, or at least severely debilitating, diseases.

Many countries allow it. Austria, most of Australia, Belgium, Canada, Colombia, Ecuador, Germany, Italy, Luxembourg, New Zealand, Spain, Switzerland, Uruguay, as well as the states of California, Colorado, Delaware, Hawaii, Illinois, Maine, New Jersey, New Mexico, Oregon, Vermont, Washington, Montana, and Washington, D.C.

MAID appears to have been legal the longest in Switzerland, which put it into law in 1942. Of the 13 jurisdictions in the United States which have adopted MAID, the first state to do so was Oregon, in 1997. It was more than a decade before any other states followed suit. None of these jurisdictions want to become known for "death vacations." Local or national laws may limit the practice to residents.

Almost all will require a confirmed medical diagnosis that natural death is likely within six months. A few will allow it for extremely debilitating, incurable diseases. Some are more lax.

In the U.S., the patient generally self-administers the lethal medication. In Canada, it is usually administered intravenously by medical professionals. The intent is to swiftly induce a deep, comatose sleep followed by cardiac and respiratory arrest.

I spoke with one U.S. physician who has performed MAID many times for patients, and he assured me that for the patient, it would be much like simply going to sleep. If loved ones are performing the "death watch" it is possible that natural body reactions, such as agonal breathing, may give the appearance of a death more painful and less peaceful than it actually is.

The issue really falls under Ethics 101. When facing an absolutely miserable, long, downhill path to inevitable death, assistance in dying has much to recommend it — not only for the individual patient in question, but for their loved ones who go through the ordeal with them, largely helpless to assist. Assistance in dying is something we do for our animals, out of mercy. That principle would seem to apply to the human animal as well. — *Massad Ayoob*



Ways to drought proof your garden

By Jordan Charbonneau

I'm lucky enough to live in a part of the world where freshwater is generally easy to find. Our West Virginia homestead averages about 45 inches of rain annually and abounds with creeks and vernal pools. The forests and gardens grow thick and lush, but the weather is never guaranteed.

In 2024, West Virginia experienced its worst drought in 50 years. Don't get me wrong, I'm grateful that our homestead wasn't impacted by the

weather patterns wreaking havoc elsewhere in Appalachia.

While we watched our creeks run dry, our neighbors in southern West Virginia, Kentucky, North Carolina, Virginia, and other southeastern states were pounded with heavy rain and wind that destroyed highways, towns, and farmlands. The devastation made our drought issue seem very small indeed, but it was a good reminder that nature won't always stick to the plan.

Rainwater collection

Our homestead runs entirely on our rainwater collection systems. Our main water source is a 2,500-gallon tank fed by gutters off the roof of our 500-square-foot cabin. On a smaller scale, we collect water in large stock tanks off the roof of our chicken coop and other buildings.

We also designed our gardens and orchards to catch and hold as much water as possible. Our gardens and orchards are terraced into the hill-sides with low pathways behind them.



Our main water source is a 2,500-gallon tank fed by gutters off the roof of our 500-square-foot cabin.

Each pathway catches rainwater that flows downhill and allows it to seep into the bed. Larger swales throughout the property also help to catch water and reduce erosion.

The drought of 2024 put these systems to the test. While we watched the water in our large tank drop, we carefully prioritized water use on the homestead. Humans and animals got first dibs, with the gardens coming in last.

Despite a minimal water ration, our gardens produced even as temperatures skyrocketed. Here are some of the tactics that helped us grow even during drought.

Plant early

We take advantage of spring's cooler temperatures and rain showers by getting crops into the ground as early as possible. This is especially true for cold-tolerant crops like potatoes, cabbages, and onions.

Planting calendars typically offer a wide range of planting dates. For example, in zone 7a, experts recommend planting potatoes between March and May. We plant in March and always have good yields with no supplemental watering. For some crops, fall planting may be another option, though our drought continued well into fall.

Select drought-tolerant varieties

Even in a normal year, we water our gardens as little as possible. Limited water aside, watering adds another chore to our already hectic schedule.

Thankfully, many wonderful heirloom vegetables feature excellent drought tolerance, like Bloody Butcher dent corn, Iron and Clay Southern peas, Bolloso Napoletano basil, and Matt's Wild cherry tomatoes.

We follow the same pattern with flowers, opting for sturdy, drought-tolerant blooms like echinacea (cone-



Planting early means we can take advantage of spring rains.



Our Bloody Butcher dent corn grows well despite getting little water.

flowers), rudbeckia (Black-Eyed Susans), cosmos, and butterfly weed.

While we have several standard orchard choices such as apples, raspberries, and peaches, we're also experimenting with more drought-tolerant fruit trees. So far, our figs and mulberries seem to be the hardiest choices.

Tap into gray water

Gray water is the wastewater a household produces that doesn't include sewage or toilet water. Essentially, it's all the water that flows down your sink, shower, bathtub, washing machine, or dishwasher drain.

While statistics vary, most sources report that the average person in the



Fig trees are drought tolerant and produce delicious fruit.

United States produces between 30 and 40 gallons of gray water daily. That's a lot of water!

While I'm certain we don't produce that much in our house, we take full advantage of any gray water we create. We have our gray water set up so that it flows from the house into a

trench that winds past our peach tree, raspberry bushes, strawberry patch, and finally into our vegetable garden.

If you want to set up a similar system, plan it carefully. Don't let gray water spill onto a slope where it will erode and do more harm than good. Our water travels into the garden par-

allel to the slope so that it can slowly sink into the soil.

If your gardens are far from the house, you should run the water through a pipe if possible. Running the water through a long ditch will lead to evaporation.

Ideally, you should also have a way to divert water if the garden becomes too wet. In rainy seasons, we'll accomplish this by blocking the trench that leads to the garden and diverting the water into a small hand-dug pond, where it slowly absorbs and evaporates.

Plan to plant your water-hungry crops near where your gray water spills into the garden. These include annuals like melons, tomatoes, rice, celery, and cucumbers. Many orchard crops such as citrus fruits, apples, peaches, pears, and plums also benefit from abundant water.

Once your gray water system is set up, you'll need to take extra care with what you put down the drain. We avoid using chemicals and commercial soaps that could have harmful ingredients that would end up in the garden. Instead, we wash everything with homemade soap, but there are also biodegradable, safe products available commercially.

Lean into old methods

The old-timers around here didn't grow up with fancy irrigation systems or even sprinklers. They watered gardens by hand or not at all. The same was true for Native Americans who first farmed these lands and subsistence farmers worldwide. Without modern watering systems, these folks designed methods that took advantage of the rain and protected the soil.

One old practice called dry farming was popular with cultures that developed in arid landscapes. This method relies on the soil's crust to hold moisture in the soil beneath. In many regions, no-till practices were part of this method as they protected the soil.

Among dry farming practitioners, the Hopi used planting sticks to dig holes into the soil to sow seeds. Many modern recommendations for corn say to plant it at 1.5-2 inches deep, but in Hopi dry farming, they sow the seed anywhere from 3 to as much as 18 inches deep!

This practice sounds unusual, but in dry areas, planting deep ensures seeds get the moisture they need during the critical germination period. This method is generally only appropriate for larger seeds. The plant needs enough energy to push through the soil and reach the surface before it can photosynthesize. I haven't tried 18 inches, but in dry years, I push corn, squash, and bean seeds deeper into the soil.

For crops that cannot be planted deep, I use the board method my 98-year-old neighbor taught me. I sow carrots, lettuce, or other small seeds in rows, water them in, and then cover them with boards or a thick layer of cardboard. This holds in all the moisture, so you only need to water once. However, you need to check the seeds regularly and remove the boards or cardboard as soon as the plants break through the soil.

Another common technique that improves drought tolerance is inter-



Growing crops close together helps to keep the soil cool.

planting. Most homesteaders are familiar with the Three Sisters garden method for corn, beans, and squash. In that method, the long vines of large squash leaves create a cool, shady garden bed that holds in moisture and blocks weeds.

In dry farming, practitioners grow various crops, including trees and shrubs, in tighter spacing. In the Hopi tradition I mentioned above, farmers plant 10-20 corn seeds in a single hole so that they grow in a tight clump.

Growing crops close together can help shade the soil, reduce wind and heat stress on crops, and reduce water evaporation.

In addition to the Three Sisters Garden method, I interplant almost all of our crops. I plant tall zinnias and sunflowers between zucchini mounds, transplant onions amongst rows of cabbage, and stick marigolds and basil amongst my tomatoes.

Use a lot of mulch

Mulch is a layer of insulation for your soil. It helps keep the soil cool and hold in moisture. If you're skeptical, try mulching just half a bed and check the difference in soil temperature and moisture on each end. It makes a huge difference!

We use a mixture of wood mulch that we get for free from a local feed store, old leaves, and partially composted material from our chicken composting system.

As a bonus, these mulches help suppress weeds and add organic matter to the soil as they break down.

While I'm a huge fan of mulch, there are a couple of things to consider before covering your garden. The first is soil temperature. If you're planting or transplanting warm-season crops like zucchini, eggplants, or peppers in spring, you may want to hold off for a couple of weeks until the soil is warm. Laying mulch on

cool spring soil will insulate the soil, keeping it cool longer and stunting the growth of heat-loving crops.

Slugs are the other major consideration when it comes to mulch. Slugs are nocturnal, soft-bodied mollusks. At night, they come out and snack on your plants, leaving large, irregular holes in leaves and fruit, shiny slime trails, and occasionally seedlings that are missing entirely. During the day, they hide away in cool, damp locations to avoid drying out. Mulch is a great place for slugs to hide.

If you're struggling with slugs, temporarily pull back the mulch and place slug traps. Fill containers with beer or a thin slurry of yeast, flour, and water. Bury them in the garden, and the slugs will fall in but won't be able to get out.

Control weeds

Though heavy layers of mulch will go a long way in preventing weeds,

you'll still need to weed. In addition to crowding your plants, weeds take precious water away from your crops, especially in a drought when resources are scarce. Keep up with weeding the best you can, especially around water-hungry crops.

It's easiest to stay on top of weeds if you keep up with them while they're tiny. I use a wheel hoe between long rows and a stirrup hoe in our smaller beds.

Build good soil

Building good soil can take years, but it's one of those homestead projects that's worth the long haul. Loose soil that is rich in organic matter will absorb and hold moisture better than sand or clay soils.

When we first built our homestead, our garden beds were entirely heavy clay soil. While many are still works in progress, we're seeing a real change in our oldest beds.

To build organic matter, we add compost and mulch to the beds whenever possible, usually multiple times annually. We also grow cover crops like buckwheat when the beds are empty.

To improve soil structure, we practice low-till methods. We're not perfect no-till farmers, but once our beds are established, we rely on the broadfork and wheel hoe to maintain them. Cover crops like daikon radishes can also improve soil structure by busting hardpan and creating air pockets.

If there's one thing homesteading has taught me, it's that nature is never predictable. Even if your homestead typically has plenty of rain each season, that may not always be the case. In a year of severe drought, these water-wise strategies helped ensure that we still got a harvest. Hopefully, they'll help you do the same. Δ

Comic by Wren Everett



How to make an easy and inexpensive rhubarb forcer

By Dawn Lamoureux-Crocker

The rhubarb plant plays an integral part in the New England homestead economy. Rhubarb grows with uninhibited luxuriance Downeast. You will never fail to encounter a lush patch in nearly every yard or garden, in and around old abandoned homesteads and on many of the adjacent islands. Each neighbor claims their patch is superior and family recipe boxes are

stuffed with various ways to cook, preserve, and serve this important staple.

For longer than many around here can recall, locals have been picking the crimson stalks at their freshest and preserving them for consumption throughout the year.

Rhubarb is commonly served as the base for many desserts such as pies, crumbles, or roly-polies.

However, rhubarb is a wonderfully versatile ingredient. The sharp

taste lends itself to a wide range of culinary delights such as pickles and chutneys to accompany game, fish, or meat. When juiced, it can be infused and transformed into delightful spring and summer cocktails.

Rhubarb is one of the first delights of spring here at Starboard Farm and I look forward to when the first glossy nubs poke through the soil. This is the perfect time to “force” my rhubarb.



This simple rhubarb forcer will give you a sweeter and more tender rhubarb stalk for your recipes. This rhubarb is ready to harvest.

Forcing rhubarb is a method that encourages your crop to mature earlier for harvest by depriving the plant of light. The stalks grow taller in their quest for light. Because of the lack of light, there is less chlorophyll produced, resulting in a tender, bright pink, sweeter stalk that is lovely in desserts. Another benefit of forcing is that it extends the growing season, allowing you to enjoy your harvest longer. Depending on your location, you can begin to force your rhubarb in December.

The forcers often have a removable lid to check the progress without allowing too much light to enter the forcer. Traditional terracotta forcers used in England are elegant, but pricey. Making your own forcer is easy and inexpensive, and yields the same results.

I have used recycled plant pots, old galvanized trash cans, and an old wood barrel. My neighbor has even used cardboard boxes, which would be a temporary solution as it would not withstand the weather for long.

Making your homemade rhubarb forcer

You will need:

- Large plastic plant pot or plastic trash bin — tall enough to allow rhubarb to grow to a decent height, dark in color to block light but also absorb heat from the sun
- Jigsaw cutter or utility knife
- Scrap plastic piece for lid
- Drill
- Wooden knob
- Screw

Step 1: Using an electric jigsaw or utility knife, cut a hole in the bottom of your container. It doesn't need to be very large, just enough so you can check the progress of your rhubarb.



Rhubarb forcer top view

Step 2: Use a round scrap piece of plastic or wood that is slightly larger than the hole in the bottom of the container. Drill a small hole in the center of the lid and fasten the wooden knob to the lid using a screw.

Step 3: Place your rhubarb forcer over the top of your desired plant. If you think your forcer is light enough for the wind to blow over, then secure at the base. Spring in Maine is tricky. A 50-degree day could be followed by a 28-degree day and snow. So I insulate the outside of my forcer with leftover sheep wool and hay, wrapped with an old blanket or sheet.

Your homemade rhubarb forcer is finished! Forcing rhubarb can take anywhere from six to eight weeks. Make sure to check periodically. I normally harvest when the rhubarb hits the top of the container. You should never force a rhubarb plant for consecutive years. I give a two-year rest in between to allow each plant to recover.

Here are some recipes created using our forced rhubarb.

Orange posset and poached ginger rhubarb:

In this recipe, I use forced rhubarb to create this light and dreamy posset. Forced rhubarb is tender and retains the gorgeous bright pink color even when poached. Posset can be made using lemon or lime in place of orange.

Orange cream posset:

- 1 fresh orange that will be juiced and zested
- 2½ cups heavy cream
- ¾ cup granulated sugar
- 2-3 Tbsp. orange zest, finely grated
- 6 Tbsp. orange juice

Poached ginger rhubarb:

- 4-5 stalks forced rhubarb
- ½ cup granulated sugar
- 2-3 Tbsp. fresh ginger, finely grated
- ½ tsp. cardamom, freshly ground



Orange posset and poached ginger rhubarb



Rhubarb custard pie

Zest the orange and add to a medium saucepan with the heavy cream and sugar and bring to a boil. Turn down the heat and simmer for three to four minutes. Juice the orange and add 6 Tbsp. of juice to the saucepan. Bring the mixture back to a boil then take off heat. Pass the liquid through a fine sieve and separate the mixture into four small dessert bowls or wine glasses for an elegant touch. Place in the refrigerator and chill for at least four hours or overnight.

Trim the ends of four or five stalks of forced rhubarb and place in a vacuum seal bag. Add the sugar, ginger, and cardamom. Seal bag and poach in 160 F water bath for 8-10 minutes.

Allow rhubarb mixture to cool, then remove rhubarb and slice into 1-inch pieces and place atop each dessert bowl of orange posset.

Rhubarb custard pie:

Spring brings a glut of fresh eggs from the Sunny Side Girls. Paired with some forced rhubarb, this is a traditional spring dessert.

3 egg yolks
1 cup whole milk
2 Tbsp. flour
1 cup sugar
1 tsp. vanilla
2 cups rhubarb, chopped into ¼-inch pieces
Unbaked 9-inch pie crust
Cinnamon

Beat the egg yolks. Add milk, flour, sugar, and vanilla. Beat until well incorporated. Add rhubarb to egg mixture and pour into a prepared, unbaked pie shell. Sprinkle cinnamon on top. Bake for 20 minutes at 400 F, then reduce oven temperature to 350 F and cook for 30 minutes more or until the middle has set.

Serve warm with ice cream, cold with whip cream, or with a meringue topping using the discarded egg whites.

Serves eight (or two if you happen to just split the pie as we do).

Dawn is the owner of Starboard Farm located in Machiasport, Maine. To learn more about her farm and recently published cookbook *Starboard Sampler*, a collection of traditional Downeast Maine recipes, please visit [instagram.com/starboard_farm](https://www.instagram.com/starboard_farm). Δ

Successfully *murder* squash borers

By Jenny Tennant

I have a secret: an easy way to kill squash borers and save the poor dying plant. One of the biggest signs your plants may have a squash borer infestation is if they are wilted in the morning. Look for holes toward the bottom of the plant that have green or orange powdery residue, called frass. My method for removing these borers is low cost, fast, and has low toxicity. The only tools you will need are a syringe, a big bore needle or pipet tip, and store-bought hydrogen peroxide.

Desperation made me try this approach because my usual method of throwing out infected squash would have left me with nothing. The typical advice given — to slice open the stem and pick the borers out with tweezers — seemed unlikely to work for me. I envisioned hopelessly mangled stems, and where exactly were these borers, anyway?

When my zucchini and Hopi Pale Grey squashes both started to die, I sacrificed the sickest of each and performed an autopsy. For the zucchini, the borer was an inch or two from the ground. But the Hopi Pale Grey, growing on a squash tower, had its borer three feet high. It wasn't clear from the outside where the borer was. Unfortunately, I quit looking when I found one. Turns out, there were probably several in that sacrificed Hopi Pale Grey as the one I saved had five or six! In any case, I had little hope of



Treating for squash borers. Note the swollen flesh and yellowish cast to the stem.



A week after treatment, the stem is greener, less swollen, and the holes have dried. There are far too many holes in this poor squash stem, as I was still learning. You should only have to make one hole per stem section (between leaf nodes), but this proves the toughness of squash plants.

Adobe Stock / Justin Martens

my being able to accurately find and surgically remove borers.

Someone somewhere said to pour diluted hydrogen peroxide over the cut stems when using the classic approach, and that was the seed for this discovery.

Here is the method: Mix 1 ounce of drugstore hydrogen peroxide in 8 ounces of water. Using a syringe, inject 6-8 milliliters into the top of the squash stem section (one hole per stem section between leaf nodes) that has borer activity. If the solution won't inject, back off a hair as the needle or pipet tip is probably hitting the back wall of the stem. Also, it's better to enter the stem at an angle, as that allows more room for error and you're less likely to punch through both walls of the stem — but if you do, carry on. Squash plants are remarkably tough. For more control, it may be advisable to make the hole first with a drill or sharp nail.

The solution will likely come out of a hole lower down than the borer made. The weak hydrogen peroxide solution will kill the borer, disinfect other opportunistic infections, and water the squash's damaged stem from the inside. When in doubt, inject. It doesn't seem to hurt the plant. Then, squirt undiluted hydrogen peroxide on the outside. Often one treatment is all that's needed, but repeat daily (using the same hole) until the needle wound looks dry. If you see gooey borer slime coming out the lower hole, keep injecting diluted hydrogen peroxide until it comes out clear.

I wound up injecting the bottom 12 sections of my Hopi Pale Grey squash. Yes, you read that correctly! There were five or six borers that I saw sliming out, but all of the sections had that sickly yellowish cast, so perhaps young and small borers were inside other sections. I truly didn't expect success, and worse, the borer-killing operations happened during a streak of sunny days in the



The Hopi Pale Grey squash is looking fine two weeks after treatment.

90s. The squash leaves did go a bit limp during the hottest part of the day, so I took off the worst leaves, letting the plant concentrate on the healthy ones. A week later this squash plant looked great, and the one giant squash had been saved.

The zucchinis were far more damaged than the Hopi Pale Grey before I got to them. Also, the experiment had just begun, so I drilled several holes right through both sides of the stem.

When I was done with them, their sad stems looked like loofahs. That's when, in desperation, I started using the undiluted hydrogen peroxide on the outside. In a day or two the stems became more green, and the many holes began to close. More importantly, blooms and baby squash returned.

I hope this technique works as well for you as it did for me. I think one key is to inspect the squash daily and catch the borer infestation early. Δ

SNAKES: AN HONEST LOOK AT A MISUNDERSTOOD ANIMAL

By Jaeger Everett

Illustrations by Wren Everett

Snakes. The very word is often enough to cause a person to skip over an entire article of interesting information. An image of one of these serpents can force a person to close the magazine and put it aside, never to be opened again. And the living creature itself will cause such body-wide expressions of fear that one's fight-or-flight response will be turned up

to 10. This results in an inordinate amount of screaming, screeching, and flailing body parts.

But why is this? Are these animals really so dastardly as to deserve such treatment? I, for one, would certainly say that they are not and do not. As is always my hope, I wish to impart a bit of information, knowledge, and data to help assuage this fear. So, without further ado, let's begin our look at this overly maligned earthly being.

General information about snakes

To say that snakes are very misunderstood members of the animal kingdom is quite the understatement. There is a whole lot of incorrect information or blown-completely-out-of-proportion "facts" about them floating around in popular culture. I guess that is to be expected with anything that is so greatly feared, as fear is oft the result of ignorance rather than knowledge. So, let's start here



While we are taught to treat all snakes as if they are deadly, venomous, and out to get us without any provocation, the reality could hardly be further from that misconception.

with the biological basics of these amazing creatures.

If you ask the average person what they know about snakes, most people will say that they are gross, slimy reptiles that crawl around on their bellies and are looking for any excuse to bite you and inject you with deadly venom without any notice or provocation. Well, they are reptiles, and they do crawl around on their bellies, but the rest just isn't true. Their skin is actually dry; they are surprisingly clean for crawling around in the dirt all day; and most of them don't even have deadly venom and are just looking for any excuse to get away from you as fast as they can.

To begin with, snakes are animals. This means that they are unable to produce their own food (like plants can), ingest their food before digesting it (fungi do it the opposite way), and are mobile for at least some portion of their life (unlike both plants and fungi). As reptiles, they have dry skin, use eggs to bear young (although a good number of snakes actually give birth to live young), and are cold-blooded. The fancy science term for this is ectothermic. "Ecto" is the root meaning without or outside, and "therm" deals with temperature; so "ectothermic" just means that it relies on its external environment to maintain its body temperature (this is as opposed to animals like mammals and birds that produce their own heat). Because of this, you will see snakes and other reptiles basking in the sun to warm up on a cold day or retreating into the shade of a large stone or rock pile during a hot day. The benefit to being cold-blooded is that they require far less food than their endothermic counterparts. Mammals must constantly eat in order to maintain their temperature, whereas a snake can have long breaks between meals without any issues.

There are a number of things that differentiate snakes from other reptiles. Most obviously, snakes lack

limbs. They also have elongated bodies. These two traits make them move about in a way unique to them — slithering. How exactly they do this depends on the snake. Many can crawl, rather quickly I might add, in a straight line; however, there are some, notably the sidewinders, that crawl, well, sideways. Snakes are also unable to chew or tear their food, so they must swallow it whole. Because of this, snakes have a specifically-designed jaw that allows very large things (in relation to their body size) to fit in their mouths. Contrary to popular belief, they cannot "unhinge" their jaws; instead, the lower jaw is not fused in the front and is very long and flexible. This allows for their unhinged appearance, and it allows the snake to consume a big meal.

Most of a snake's prey is both mobile and willing to fight back. Due to this, snakes have developed two main ways of subduing their prey: venom and constriction. I will talk about venom in great detail later on, so all I will say now is that the whole purpose of a snake's venom is to incapacitate the prey animal so that it can be swallowed and digested. This is the same purpose of constriction. A snake will wrap its body around its prey and squeeze until the animal is unable to breathe and eventually dies. During this process, every exhalation of the prey animal allows the snake to squeeze harder and makes it even more difficult for the prey to breathe. After a short while, even a shallow breath is impossible, the animal dies, and it is safe to swallow.

Snakes and the homestead

Snakes are one of the most important wild members of the properly-functioning and healthy homestead (and ecosystem in general). Anyone who has an interest in maintaining a well-balanced piece of land would best do whatever he or she could to encourage the presence of snakes.

As a high-level predator, snakes keep the numbers of their prey in check. What their prey is depends on which sort of snake you are talking about and how old the snake is. Very small snakes and the young of larger species will often feed upon insects of various sorts. As they grow, they will begin to take on larger and larger prey. Let's take one of my favorite snakes, the black rat snake, as an example. A very young black rat snake may start with those already mentioned insects. As it grows, it will begin to seek out things like baby mice and voles. From there, it will move on to some of the full-sized smaller rodents like mice, voles, and shrews, along with birds, birds' eggs, and the young of larger rodents like rats. Once it has fully matured, this easily 6-foot-long snake will subsist on a diet of any rodent it can catch, including full-sized rats, and bunnies when it finds them. Just think of how many rodents a 6-foot-long black rat snake had to consume in order to get that big and then realize it has to continue eating them in order to stay alive. Truly a great asset to be had on the homestead!

It then goes almost without saying that removal of snakes from your land will result in an increase in the number of their prey, mainly rodents. As rodents, in all their various forms, cause far more loss and damage on the homestead than snakes ever will, it would not be wise to put an all-out ban on snakes on your property. Snakes work around the clock to keep these troublesome animals in check, and it would behoove you to encourage their presence.

I should also mention that there are many snakes that eat other snakes, including venomous ones. Interestingly, one of the best ways to keep the number of venomous snakes in check is to increase the presence of snakes on your land. The kingsnakes are one such group of venomous-snake-hunting snakes. The beautiful

black-with-white-flecks speckled kingsnake; the oft-killed-due-to-mistaken-identity red milk snake; and the prairie kingsnake are three snakes in this group.

Now that you know how important these guys are on your piece of land, let's take a look at that which everyone is most worried about: venomous snakes. However, before we get to the snakes themselves, we need some definitions.

Toxin, venom, and poison

Often used almost interchangeably, these three words are actually different words for a reason. Although admittedly, there is quite some overlap, especially when looking at colloquial or common usage among the average American citizen. So, before continuing this article on venomous snakes, let's see what that even means.

First up is toxin. A toxin, according to *Merriam-Webster's Collegiate Dictionary Tenth Edition*, is "a poisonous substance that is a specific product of the metabolic activities of a living organism and is usually very unstable, notably toxic when introduced into the tissues, and typically capable of inducing antibody formation." It is interesting to note that toxins are always biological in nature (they are produced by a living thing). They are unstable, which means that they generally don't hang around long before breaking down into other compounds. Obviously, they are toxic, which means they have a negative effect on living things. Finally, they usually cause the body that receives the toxin to launch a defense against it (by producing antibodies and other things). From a biological standpoint, both venom and poison are types of toxins, but they differ mainly in how they are used.

A venom is a toxin that is injected into the body via fangs, stingers, or other stabby parts. Snakes, spiders, scorpions, and lionfish are all ven-

omous animals. They inject a toxin directly into their prey using various specially-designed implements on their bodies. This venom is stored in glands that are connected to these implements via small channels called ducts. There is usually some measure of control to how much venom is injected, which can lead to vastly different effects from the bites or stings of the same creature. There can even be a "dry" bite or sting if the animal has already used up the stored venom or decides that it is not necessary to use its precious supply at that very moment.

Poison is a much more passive toxin than venom. While venom is often injected through a very sudden action, poison is kind of just lying in wait. A poison is a toxin that enters the body by being eaten, breathed in, or absorbed through the skin. Think of the monarch butterfly. Nothing could be more harmless, right? Although lacking stingers, fangs, or any dangerous-looking thing whatsoever, monarchs are generally left alone by predators. This is because monarch butterflies contain poisons (cardiac glycosides, if you care to know) that cause severe problems, or even death, in any small creature that eats it. Because of this, all of these would-be predators know to avoid anything that flutters around all harmless-like and has that distinctive orange-and-black-with-white-spots coloration (a fact that the non-poisonous viceroy butterfly takes advantage of).

Venomous snakes

There are actually many different species of venomous snakes in North America. However, there are really only four general types — rattlesnakes, cottonmouths, copperheads, and coral snakes. So, for all intents and purposes, it is really only crucially important to know these four types. If you can remember the characteristics of these four classes, you should

be able to at least recognize which group a specific species falls in.

Three of the four general types of venomous snakes in the United States are pit vipers (only the coral snakes are not). Thankfully, pit vipers have a couple general traits that they share and that help separate them from their nonvenomous compatriots. First of all, they generally have a wide V-shaped head that ends in a distinct "neck" region. You must remember that those venom glands are located in their heads and take up room. This makes their heads have a distinctly different shape than those of nonvenomous snakes.

They also have different-looking eyes, specifically their pupils. The pupils of a pit viper are slits, whereas those of nonvenomous snakes tend to be circular. This gives pit vipers a distinctive "angry" look. While you might think that you would never want to get close enough to a snake to see its pupils, when a snake is threatened, it usually holds very still so it is actually often quite easy to see its eyes.

In addition to the above, pit vipers tend to have "squattier" bodies. Of course, they are still snakes, so they still have long bodies, but they look almost like the bodybuilders of the snake world. When threatened, they will often coil up their bodies. This is a defensive posture that gets them ready to strike at a threat. Thankfully, pit vipers are generally not aggressive and only strike when they believe their lives are threatened.

Rattlesnakes

Certainly the largest group of venomous snakes, these snakes give a very obvious sign that they don't want you around — they shake a rattle on their tail. The rattle is a group of modified scales at the end of its body that makes a very distinctive sound when shaken. It is made of the same chemical compound, keratin, that your own fingernails are made of.

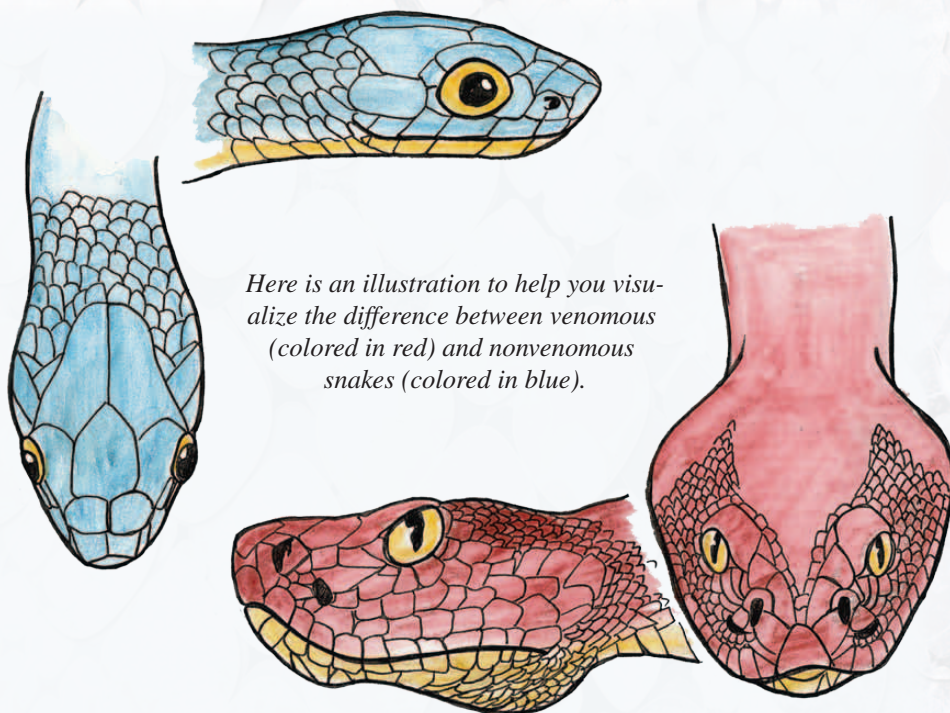
As already mentioned, there are many different species of rattlesnakes. In the United States, they are represented by the timber rattlesnake, the eastern and western diamondback rattlesnakes, the pygmy rattlesnake, and the massasauga rattlesnakes, just to name a few. The largest venomous snake in the United States is the eastern diamondback, and it can grow up to 8 feet long. In any case, they are all a part of this group because they share that oh-so-easy-to-identify characteristic rattle.

Of all the types of venomous snakes in the United States, rattlesnakes have the most toxic venom to humans. Studies have shown that the death rate from *untreated* bites from several species of rattlesnake to be around 10 percent (while some studies put the Mojave rattlesnake's lethality up around 30 percent). Interestingly, there isn't just one or two toxic compounds in rattlesnake venom; there is thought to be upwards of 100 different toxic components!

Cottonmouths

Cottonmouths are also called water moccasins. Each of their common names give hints to some aspects of this snake. The name cottonmouths comes from the bright white inner parts of their mouths. How do you get a good look at the inside of a snake's mouth, you may ask? Well, when threatened, these snakes warn potential bite victims by opening their mouths widely. They get the name water moccasin because they are also semi-aquatic and choose to live in faraway swamps, streams, and other bodies of water infrequently visited by people.

Cottonmouth venom, like other snake venom, has many different toxic components with various effects on the body. However, clinical reports published by the National Library of Medicine in an article called "Water Moccasin Snake Toxicity" have shown that the most commonly



reported symptom of people bitten by a cottonmouth was swelling. Just about 20 percent of cases resulted in some sort of gastrointestinal problem, and 20 percent resulted in excessive bleeding (as the venom prevented the blood from clotting quickly). There were no deaths recorded in this report, but I will mention that there have been 2 deaths from cottonmouth bites in the 30 years between 1989 and 2018 (as will be shown later).

Copperheads

The copperhead is named for the color of its skin. It has light copper and dark copper splotches all along its body. Its head and double-Hershey-kisses patterning are dark copper which are highlighted by the lighter copper color.

Copperheads are known for being nonaggressive. These snakes remain calm and try to remain as still as possible when near a threat (like a human). Their preferred habitat is on rocky hillsides with plenty of tree cover, but they are also known to take up residence in abandoned buildings. It is for this last reason that of all the

venomous snakes, you are most likely to be bitten by a copperhead.

Thankfully, copperheads also have very weak venom when compared to other venomous snakes. Even untreated, the lethality of a copperhead's bite is less than 1 percent. This is a good thing as they actually account for the largest number of bites (around 50 percent of venomous snake bites). During the same 30-year period mentioned above, there were 5 deaths from copperhead bites.

Coral snakes

Coral snakes are the only venomous snakes in the United States that are not pit vipers. This means that they don't have those easily-distinguished characteristics that the others do. Thankfully, they have something that makes them even easier to identify: a specific color pattern of red, yellow, and black. However, don't be completely freaked out by every red, yellow, and black snake you find, as coral snakes closely resemble our much more common and nonvenomous red milk snake. Because of this similarity, people have come up with

ANIMALS THAT ARE FAR MORE DEADLY THAN SNAKES*

*BASED ON ACTUAL DATA



LARGE LIVESTOCK



BEEES, WASPS, HORNETS



DOGS

According to actual scientific data, all of these animals cause far more deaths each year than snakes do.

a nice little rhyme to distinguish the two:

*red to black, venom lack;
red to yellow, killed a fellow*

This is in reference to the order of stripes on the snakes' bodies which both have red, yellow, and black bands. The coral snake has red bands that abut yellow bands, whereas the milk snake has black on either side of the red bands. And if that rhyme is too much to remember, just think of a traffic light: red, yellow, STOP!

These guys account for the least number of snake bites — only 3 percent of venomous snake bites are due to a bite from a coral snake. They also account for the lowest number of deaths, with only a single death

during the 30 years between 1989 and 2018. Their limited range and secretive nature certainly play a role in keeping this number low. Your chances of encountering one are very small.

Envenomation data

Now that we have taken a look at all of the above, let's take a look at the hard and fast data on snake envenomation in the United States. Fear is easy to spread through all sorts of media, and much of this is based upon anecdotes and culturally accepted norms on how to look at certain things. But as rational beings, we can do better than just blindly following panic. However, to overcome the fear that has been instilled within us, we

really need to dive into the real data to see what sort of threat these reptiles actually pose to us. So let's do that.

Our first look at the data comes from the 2009 Volume 47 issue of the *Clinical Toxicology* journal. In this journal, R.L. Langley wrote an article appropriately titled, "Death from reptile bites in the United States, 1979-2004." What did he find? Well, during this 25-year period in the entire United States, there were 134 deaths from reptile bites (not just snakes). That averages out to just about 5 deaths a year. In case you were wondering, white males between the ages of 25-34 accounted for the majority of those deaths. It is also interest-

ing to note that three-quarters of the deaths were from just 5 states (which were mainly in the south).

Another article appearing in the July 2021 edition of *The American Journal of Emergency Medicine* looks at a whole 30-year period of lethal snake bites. In the article titled, “Epidemiology of fatal snake bites in the United States 1989-2018,” Greene et al. scoured the poison control centers’ databases for every snake bite recorded during that time period. Even though there were between 5,000 and 10,000 venomous snake bites each year, there were only 101 deaths from snake bites during that entire 30-year period. Yes, that means that even though there were more than 150,000 bites in those 30 years, only 101 deaths resulted from said bites (that is *at most* a 0.07 percent chance of death or 1 out of every 1,500 bites). They even looked at the type of snake for each death; 1 was from a coral snake, 2 from cottonmouths, 5 from copperheads, and 74 from rattlesnakes (the other 19 deaths were from unidentified snakes).

This article also looked at the situations where the snake bites occurred. There were three main situations that accounted for many of the bites. First, when venomous snakes are used in religious services; second, when it is your job to handle venomous snakes; and third, when one tries to kill a snake. Thankfully, all of these situations are easily avoided. I should highlight the final reason and encourage you not to try and kill the snake as doing so drastically increases your chance of getting bit.

Finally, an article appearing in the March 2018 issue of the *Wilderness and Environmental Medicine* journal gives us a bit of interesting comparative data. In the article titled, “An Update on Fatalities Due to Venomous and Nonvenomous Animals in the United States (2008-2015),” J.A. Forrester et al. scoured the CDC records from those years looking for reports on all deaths

related to any animal in the United States. Out of the 1,610 deaths during those years, 48 were the result of a bite from a venomous reptile. That is about 6 deaths per year during that time frame (which very closely agrees with the previous studies).

For this data to make any real difference in your life, you have to be able to compare it to those things that you instinctively believe to be rather benign. For that, I once again go to the above 2018 article, and ask you this question: Which group of animals killed the largest number of humans in the United States? Surprisingly, at least to me, it was the group called “other nonvenomous animals.” This group, which included things like cattle and horses, accounted for 576 deaths, or about 72 per year. The second most deadly group was that of hornets, wasps, and bees with 478 deaths. The third most deadly group in the article was dogs with 272 deaths (34 deaths a year). When just looking at the raw number of deaths, that makes the “other nonvenomous animals” 12 times more deadly than snakes; the hornets, wasps, and bees about 10 times more deadly; and dogs about 6 times more deadly. You should also note that the only group that accounts for a single species is dogs; and the group that includes the smallest number of individual animals is also dogs. If those facts were factored into the equation, dogs would be many times more dangerous to us than snakes.

So, am I saying that we need to go out and kill all of our dogs, cats, horses, and cows so that we can be safer? Of course not. I am once again saying that we need to look at those sources of fear that we are encouraged by our culture to hold and see if there really is any reason to embrace such fear. The answer is almost universally no. Life comes with risk, it always has and it always will. But some of those things that we are taught to be so afraid of actually pose very little risk to us. And the risk that they do

pose is almost always outweighed by the huge benefit that they have in our lives (even if we don’t realize it). That is certainly the case for snakes.

What to do if you encounter a snake

So, what advice do I have for you if you actually encounter a snake on your land? Leave it be. As already mentioned, your chance of getting bit by a venomous snake goes up drastically if you try to kill it. You must remember that it just wants to get away. Let it do that. And if it is not a venomous snake, then you should certainly just let it go on and live its life as the advantages of having it on your land far outweigh its disadvantages.

What to do if you get bit

And if for some reason you get bit, what should you do? First of all, remain calm. Severe reactions to snake bites are very uncommon (less than 8 percent of cases according to many different scientific articles). Death, as already mentioned, is even more uncommon (less than 0.07 percent) when the bite is treated. Seek medical attention as soon as you possibly can as the antivenom is very effective at preventing adverse reactions to the venom. Chances are, you are going to be just fine.

Concluding remarks

Well, there you have it — a good bit of the science and data surrounding this group of animals. Hopefully, it will help you feel better about having these guys on your land. Even more hopefully, it will make you want to encourage the presence of snakes on your property. Your dogs, cattle, horses, and trees (think falling limbs or accidents when felling them) are all more dangerous than snakes. So, next time you encounter one, just thank him for his work and let him continue on his merry way. It is the best you can do for all involved. Δ



Homestead Humbles & Fumbles

Learn to prepare for the unexpected

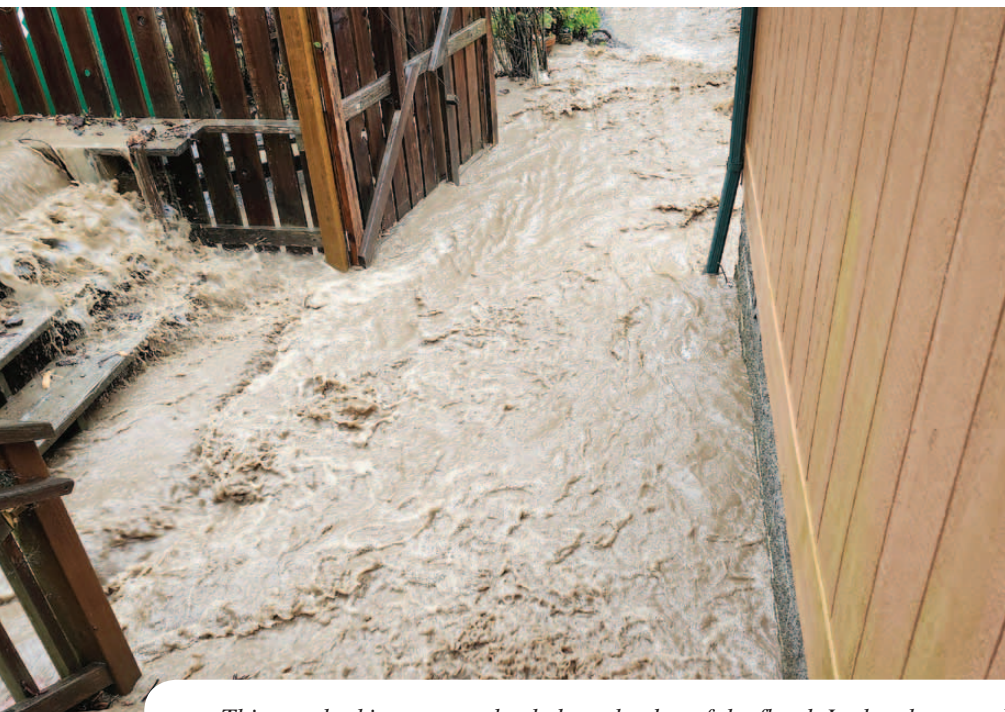
By Lisa Nourse

There is a ridgeline that runs along the back of our property, and a small seasonal creek comes down off that ridgeline and runs through our property. The creek essentially cuts the property in half, and the only access to the back part of the property was a small footbridge. We wanted better access to the back area where a future vegetable garden would be located, so we decided to put a culvert in the creek. This allowed us to drive the four-

wheeler and truck back to that area to bring in fencing, topsoil, and compost to build the garden. We had lived on the property for about five years at the time we placed the culvert and never had a problem with the creek getting high enough to overflow its banks. In all the years of living in this area, we never had this little creek flood. Since the creek had not flooded for so long, it was not something we *expected* to happen. Consequently, we didn't take steps to mitigate this risk.

Flooding

We were completely unprepared when the beginning of March 2025 brought a series of storms through our region that saturated the ground and created a lot of storm runoff. In mid-March another storm dropped more than seven inches of rain in a 24-hour period. On the morning of the 16th, the debris coming down our little creek was too much for the culvert to handle. The creek backed up and overflowed, coming toward our house. Luckily, my youngest son had



This was looking out our back door the day of the flood. In the photo on the right you can see how much rock and gravel was left after the water receded (it was about 10 inches deep). A lot of material was moved with an excavator, but all of this had to be shoveled out by hand, one wheelbarrow load at a time.

a friend who owned a mini excavator, and he was able to bring it over and divert the water before it came into our house.

Since we also live close to a main waterway that runs past the front of our property, we *expected* the front of the property to flood at some point and were prepared in that area. When we put the new house in, we built up the area where the house would go so that it was higher than the 100-year floodplain. We also had a drainage system installed to divert water. We made sure everybody knew how to turn off the electrical main for both the house and the shops if necessary. And rather than fill in a portion of our property that was lower than the rest, we purposely left it lower so that any floodwater would collect there first before coming towards the house.

The March flooding left a lot of rock and gravel all over our property and there was a lot of cleanup to do. My oldest son, who lives just two hours away, brought his excavator to help remove the mountains of rock and gravel. While he had the machine here, we decided to put in a larger culvert that we hope will be able to handle more water and debris.

While we were removing the rock and gravel from the backyard, we used some of it to strategically build up the banks of the creek so if the water gets high in the future, hopefully it won't overflow.

Another step we took to prepare for future high water was to hike up the creek and remove any debris we found that had the potential to block the culvert if it came down the creek during high water. We will do this every year before the rainy season.

Fire

Another situation we were unprepared for was fire — not on our property, but on our neighbors'.

My son, being a former wildland firefighter, has made sure that our property has a good defensible space.



My sons installing a 40-inch culvert that we hope will be able to handle the debris if the creek floods again. The mangled smaller culvert is in the background.

Fire is obviously something we are aware of, but we did not really *expect* to have to deal with it. However, there is a small strip of land between our home and the neighbors' home. This strip of land had gotten overgrown and brushy. So when their camp trailer parked next to this brushy area caught fire, one of our biggest concerns was that the fire would spread to the trees and brush and then spread to the forest behind our property. That didn't happen, but it sure made us aware of the possibility!

The brushy strip of land belongs to the neighbors, so we did not feel we could clear it and waited for them to take care of the issue. But because they were older and not able to do the work themselves, nor able to find

somebody reliable to come help them with it, the work was not getting done. To solve this problem, my son simply asked them if he could clear it and keep it maintained. They readily agreed and were grateful for the help. We had a tree company come and take down a few of the larger trees, and my son took down some of the smaller trees and cleared the brush. Although this may not totally prevent a fire from spreading, it eases our minds a little bit and it is the best we can do to prepare for the possibility.

Look around your property and use your imagination to determine what unexpected thing might happen. Take the steps necessary to mitigate the risk and you won't be quite so unprepared as we were. Δ



Removing a few trees and some underbrush gives us more peace of mind.

Joe's Workshop

Making a rainwater-fed watering hole

By Joe Mooney

It's early in the morning, and although my body is still tired, my eyes refuse to close, scanning the room; everything is still, calm, and quietly waiting for the new day. More dark than light, the horizon is showing signs of life and so am I. Throwing the covers aside, I feel the cool bite of chilled air encouraging me to leave the comfort of sleep and begin the day.

After peeling myself from the grip of a warm bed, I quietly make my way to the kitchen, thinking about

what I need to do. Of course my mind is never short of things to do, but rather, I'm trying to figure what I *need* to do versus what I *want* to do. A few scoops of coffee, hot water from the kettle, and a short while later the percolator sounds off with that familiar "bubble, glug, bubble, glug." The coffee is ready.

With smoky wisps of steam rising from my mug, I make my way to the window to look out over our humble little slice of heaven. Through the haze of morning fog, I see a white-tailed doe and her fawn quietly making their way towards the back of our property. They, too, are about to start their day with a morning drink.

I smile and take a sip of coffee as I watch them fade into the trees. No trace left, just a momentary glimpse into the peaceful life of a thirsty doe and her sweet little spotted tagalong. Where they are headed is anyone's guess. But I'm pretty confident they'll be making a short stop at one of my most enjoyed projects of all, a rainwater-fed wildlife watering hole that I built about 15 years ago.

Okay, okay ... with my little coffee commercial aside, let's get into the benefits of having a wildlife watering hole on your property, the specifics of my setup, and why you might want to set one up on your own property.



Watch Joe's companion video on this watering hole project on his YouTube page!



youtube.com/@homesteadonomics

10x21-foot rain roof is located uphill of storage tanks. Inset: Close-up of gutter and a screened inlet to the 2-inch PVC transfer piping



More than meets the eye ...

At the surface, setting up a watering hole on your property is an enjoyable investment, securing the most important resource local wildlife need to thrive. And the payoff? You'll see all manner of creatures that live in your area. From birds of the air to all sorts of mammals with hooves, claws, and paws ... they all need a drink.

And if that alone was the only benefit to setting up a watering hole ... I'd still do it. But the reality is that there are other benefits to creating this little effort of animal goodwill.

With regard to self-reliance, a properly set up watering hole will also provide a passive collection of rainwater that can be used for livestock watering needs as well as emergency domestic use in the event of a failed well or municipal water supply. For example, my particular setup consists of three 300-gallon IBC totes for a total of approximately 900 gallons of water. Which, in the event of a loss to our primary water supply, would allow for a gallon of water per person in our family of three each day for a period of 300 days. And that isn't factoring in future rains which would continue to refill the system.

Furthermore, this watering hole system can be integrated into a domestic livestock program. Specifically, it could be used to provide supplemental water to a goat or cattle paddock system. Or with added catchment and storage capacity, it could even fulfill a primary livestock watering role. Both of these examples are indeed future intentions of my own watering hole system.



Rain roof is secured to purlin grid that sits on concrete blocks and metal stakes

The final benefit I see to having a wildlife watering system like this is for food storage "On The Hoof." For those who enjoy wild game or for times where it might be necessary to procure game meat, having game that is coming to you will be advantageous.

Now let's get into how I've set up my wildlife watering system. An overview of my particular system consists of four main components:

- 1) Rain collection surface
- 2) Transfer piping
- 3) Storage tanks
- 4) Watering trough

Rain collection surface

The first part of this watering system is the rainwater collection surface, which I sometimes refer to as a "rain roof." It is located upslope from the rest of the system and is a minimal structure, set up just about a foot off the ground. This was to reduce

the amount of structure needed to mount roofing material to. I used a combination of concrete blocks (filled with concrete and anchor bolts) and concrete stakes to make a 12x20-foot grid of 2x4 purlins on which I mounted some old roofing metal. And as you'd expect, the last part of this rain roof was to attach a gutter on the low side.

Note: For those not wanting to set up a rain roof like this, I will discuss a couple other alternatives a bit later in this article.

Transfer piping

After the rainwater collects on the rain roof and flows into the low side gutter, it then flows into the transfer piping. This is made with standard 2-inch PVC pipe and fittings. First is the inlet, which is made with a 2-inch PVC elbow, a 4-inch drain pipe cap (with a 2-inch hole drilled out), and a cover of mesh to mitigate debris



2-inch transfer piping runs 150 feet downslope and empties into IBC storage tanks.



Transfer piping can be drained for freezing weather and cleaning of debris.

buildup but still allow water to pass through freely. After the inlet, the water is directed downslope approximately 150 feet to the storage tanks, which sit approximately 6 feet below the inlet.

At the point where the transfer piping meets the tanks, there is a 2-inch PVC T joint with a threaded cap on one end to allow for draining. The transfer piping then continues up the side of the first IBC tote and over to the top fill cap. (If the piping run going up the IBC tote sounds confusing, don't worry, I'll explain that a bit later.)

Storage tanks

After the rainwater flows down the 150-foot run of 2-inch PVC piping, it then empties into the top fill hole of one of three 300-gallon IBC totes. These totes are connected together at the bottom outlets with 1-inch PVC pipe so that the water is able to flow from the first tank into the other two tanks. Also incorporated into the 1-inch PVC pipe that links the tanks are individual shut-off valves so that the system can still function in the event any tank develops a leak or needs to be maintained.

Additionally, the IBC tanks are painted to help prevent UV degradation of the plastic and also to reduce light infiltration and algae buildup. Inevitably this will still occur to varying degrees, but in my experience it isn't something that affects the system overall.

Watering trough

From the PVC piping that links the IBC totes, the rainwater then flows through ½-inch irrigation tubing, underground, to the watering trough. This

“trough” is made using a standard black 20-gallon concrete mixing tub and an automatic livestock float valve mounted to the side of the tub. And lastly, within the tub there are some rocks and mesh to help tiny critters like birds and mice get a drink without falling into the tub.

Within the PVC/irrigation adapter fitting there is a small screen filter to prevent any algae from making its way into the water trough. While not completely necessary, I think this is important in helping to prevent any algae from the tanks potentially clogging the float valve at the trough.

Note: Freezing temperatures aren’t much of an issue in my location in Arizona. For hard freezes I will drain all the pipes and refill once temperatures are back up. But for folks in more northern climates, freeze prep may involve buying significant insulation, heating elements ... or just draining the system completely for the coldest months.

Now with that overview aside, you may still have some questions pertaining to how the water flows through the system, alternatives to the rain roof component, and how much water a system like this can actually collect. So let’s get into that now.

But *how* does the water flow *up* into the tanks?

Perhaps one of the most common questions I get with this type of rainwater harvesting project pertains to how the water appears to move *up* the piping and into the storage tanks. And visually speaking, it does look that way. But if we take a step back and look at the *upslope* location of the rain roof and the *downslope* point at which the water flows into the tanks, you



1-inch PVC pipe that connects IBC tanks is connected to 1/2-inch irrigation tubing that proceeds underground to the watering trough.



Author standing next to his capacity upgraded wildlife watering system

will see that the water flows because there is a difference of elevation between those two points. Much the same as if you held both ends of a water-filled garden hose level, and then lifted one end above the other, the water would naturally flow out of the lower end of the hose.

For this particular system, the *inlet* end of the pipe, up by the rain roof, is approximately 6 feet higher in elevation than ground level where the storage tanks sit. And with the tanks being approximately 4 feet in height, it gives 2 feet of elevation difference between the inlet and outlet. And water will *always* flow out of the lowest point in any piping or hose run.

Catchment surface alternatives?

For those who may not want to build a dedicated catchment like this rain roof concept, there are a couple

other alternatives that may suit your situation better.

1. Utilizing an existing structure

Perhaps you've got a shed or other structure that you don't currently harvest rainwater off of. The addition of a gutter, downspout, and an IBC tank gives you the first three components of my system with minimal investment. The only other thing is to run some ½-inch irrigation line to wherever you'd like your wildlife waterer to be located. It just needs to be at a level below the IBC tote outlet valve.

2. Billboard tarp catchment

For those of you who want their wildlife waterer to be on a more remote part of your property, a used billboard tarp can make a great budget option. As a matter of fact, the original version of my wildlife watering project was fed with a billboard tarp layed out in the same location that my rain roof currently sits.

The collection area just needs to be graded and sloped to allow the rain to collect in one corner of the tarp. The sides and this "drain" corner of the tarp will need to be bermed up to allow water to pool. Within the bottom of this "pooled" area, PVC pipe can be inserted and sealed into the lowest point to act as a drain for the water to ultimately flow into the transfer piping and on to the catchment tank(s).

How *much* water is collected each rainfall?

Another common question I'm often asked about my rainwater harvesting projects is how much rainwater they collect in a rainfall. Well, it all depends on the amount of collection area the rain roof part of the system has. As a general rule, the easiest equation to figure how much water can be collected for every inch of rain is this:

1,000 square feet of collection area for each inch of rain will yield approximately 600 gallons of water.

An old billboard tarp can be used as an economical rainwater collection surface. PVC pipe drain is installed in the lowest corner where the water pools. Note that the sides and "drain" corner of the tarp (the corner closest to viewer) need to be bermed up to channel the water to the low point.





Olive models the watering trough and float valve assembly. She wants you to note that the rocks in the corner of the trough are for little animals like birds, mice, and other tiny critters.

Conclusion

Now you may be wondering if I'm crazy to put in so much effort to set up a wildlife watering system in the Arizona desert. And to that point, I won't argue against you. It is indeed a little bit crazy! Well, I guess my answer would just be that people tend to value what isn't readily available to them. Much like a person in Alaska building a sauna, or a person in a rainy coastal area building a sunroom ... and a guy like me in the desert trying to harvest and put to good use the rainfalls we do get.

Now perhaps for some of you, water isn't as sparse and the "rainwater harvesting" aspect isn't as appealing. But you still might have an interest in setting up something similar. What might this look like for you? Maybe you're in an area where you could develop a spring or even build a small pond that you can stock with fish. One thing I can say with a fair bit of confidence is, if you do make something similar, the critters will start to visit more often. Then you, too, might have that extra motivation to get up outta that warm bed, make your coffee, and see what decides to stroll on by your window when the sun is rising. Δ



A variety of wildlife regularly visits the watering trough.

How to make a picnic table with a tile top

By Jaeger Everett

Having recently completed building my wife an outdoor kitchen, I figured that we needed a place to eat outside, too. So I built a pavilion for us, but what good is a pavilion without a place to sit? It was then I decided that we required a picnic table. Although I was tempted for a brief second to just purchase a ready-built picnic table from the store, the crafty side of me quickly threw that idea aside. As I wanted something that was unique, beautiful, sturdy, and a little bit bigger than the ones you find in the store, the only option was to make my own.

Making the wooden picnic table

As mentioned before, I wanted to make a picnic table that was just a little bit bigger than what is usually found for sale in the big box stores. Many of those picnic tables are 6 feet long, while the picnic table in this article will be 8 feet long. I am not sure why they make them 6 feet long, but I am guessing it is because of weight and transportation considerations. Indeed, this 8-foot-long picnic table will be quite heavy when it is all put together (especially with the tile top), so I highly recommend building it in the place you want it to be. I built a pavilion specifically for outdoor dining, so I constructed the picnic table right there in the pavilion.

I should also mention that I use quite a bit of untreated wood in my picnic table. I do this for a few reasons. First off, the seats are untreated because I don't like splinters from treated wood (they always seem to



Tiled picnic table completely finished and ready for use

be way nastier than normal splinters). Secondly, the table top is untreated as it will be covered with cement board and a tile top. Finally, I knew that this picnic table would always be in a covered location which will keep it from getting wet (which is what really causes rot). If your conditions are different than mine, you may want to make the whole thing from treated lumber (or other, more expensive, rot-resistant types of wood). That said, I still made the picnic table's frame of treated lumber as it will be in contact with the ground of the pavilion. I always suggest making at least the frame from treated wood.

The wooden base of the picnic table will serve perfectly well as a picnic table all by itself. If you don't want a tile top or if you are nervous about doing that, just keep it as a wooden picnic table.

Okay. With all that said, let's get started on the build.

Part 1: the supporting frame

Materials:

- (3) 8-foot pressure-treated 2x8s
- (2) 8-foot pressure-treated 2x4s
- (8) $\frac{3}{8}$ x $\frac{1}{2}$ -inch galvanized carriage bolts, washers, and nuts
- fasteners (screws or nails) approved for use in treated lumber

The first thing we need to do is cut the main pieces of the frame. You will cut a leg and a horizontal bench support from each of 2 of the pressure-treated 2x8s, and then 2 legs from the third pressure-treated 2x8. There is just enough length in an 8-foot 2x8 to get both a leg and seat support from it, so be careful of your cuts — if you cut too much off, you might be buying another 2x8.

As far as the legs go, each leg will make a 60-degree angle with the ground (if you look at other picnic table plans, there is actually quite a bit of variation with this angle, but I found a 60-degree angle to be just perfect). To cut this angle, put a framing square on the 2x8 and rotate it until the 30-degree mark lines up with the edge of the wood (see picture). If you are wondering why you measure to the 30-degree mark and not the 60-degree one, this is because the square is measuring the angle on the outside of the leg and perpendicular to the ground; this angle turns out to be 90 degrees minus 60 degrees which is 30 degrees.

These legs will measure $32\frac{3}{4}$ inches long. This will put the wooden top of the picnic table 30 inches off of the ground. Remember to cut (2) legs from one of the pressure-treated 2x8s and (1) leg from each of the other two pressure-treated 2x8s. Make the first 60-degree cut right at the edge of the board and then measure $32\frac{3}{4}$ inches up and make the second cut (it should be parallel to your first cut).

With the legs cut, now it is time to cut the bench support pieces. You will need (2) of these (one for each side), and each measures 60 inches long. On each side of both pieces, cut a small triangle off of what will be the side closest to the ground. The exact size is unimportant, but I made mine $1\frac{1}{2}$ inches up from the bottom and $1\frac{1}{2}$ inches in from the side. This makes a 45-degree angle.

Finally, cut (2) 30-inch sections of pressure-treated 2x4s. As you did with the seat support pieces, cut a small triangle off of each side of what will be the bottom of these two pieces.

Now comes the assembly of the frame. It is easiest to do this on the ground. I also suggest using another 2x4 to help line everything up (see picture); this extra board will act as the "ground" to keep everything nice and straight.

Start by putting (2) of the legs flush against the 2x4. The legs should form an upside-down V with their top corners touching in the middle.

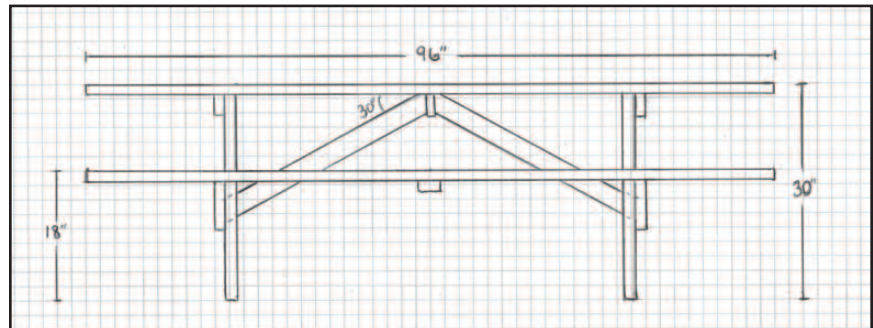
Next, measure $16\frac{1}{2}$ inches up from the extra 2x4 and make a line on each of the legs that is parallel with the 2x4. Note that this should be $16\frac{1}{2}$ inches measured perpendicularly to the 2x4 (not $16\frac{1}{2}$ inches along the side of the leg). Using a large square will help with this immensely. This is because you want the bench height to be 18 inches off of the ground, and as the bench measures $1\frac{1}{2}$ inches thick, the total height from the ground will be 18 inches ($16\frac{1}{2}$ inches plus $1\frac{1}{2}$ inches).

Now, bring (1) of the 60-inch bench support pieces and line it up with the

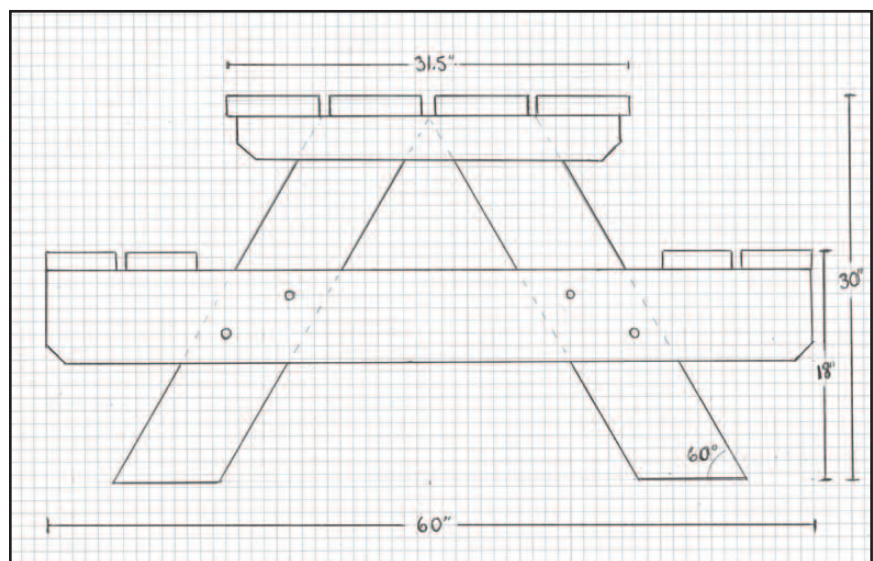
marks you made on the leg. The $16\frac{1}{2}$ -inch marks should be at the top of this support piece. Move the board side to side until it is perfectly centered.

Next, take one of the 30-inch sections of pressure-treated 2x4 and put it in place at the top of the legs. The top edge of this piece should be perfectly in line with the top edge of the legs. Make sure that it is centered.

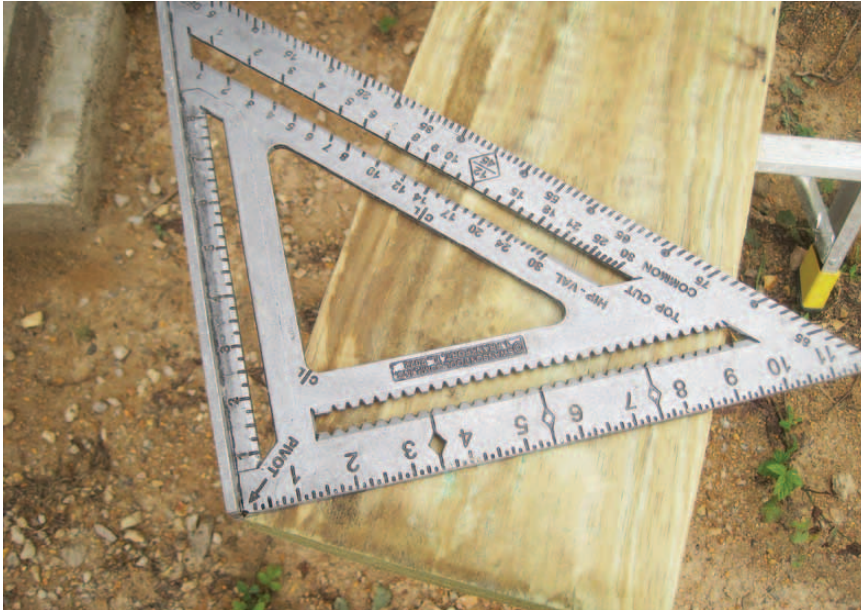
Once everything is centered and in proper alignment, attach everything to the legs with screws. Note that the screws used to hold the bench support in place are temporary and will be replaced with the carriage bolts. The screws just hold everything in proper alignment until the bolts can be put in and tightened. I highly recommend



This is a side-view schematic of the picnic table.



This is an end-view schematic of the picnic table.



Cutting the 60-degree angles for the table legs requires the use of a framing square. Put the pivot point of the square on the edge of the board and rotate the square until the 30-degree mark is in line with the edge of the board.

putting the screws in exactly where you plan on placing the bolts so that you don't have extra random holes in your finished table after removing the screws.

Now that all the screws are in, it is time to replace the screws holding the bench support on the legs with bolts. Do this one at a time. Remove one of

the screws, drill a $\frac{3}{8}$ -inch-diameter hole where the screw used to be, and put a carriage bolt in the hole. Put a galvanized washer and nut on the bolt

and tighten. Repeat this for the other screws.

Do all of the above steps one more time to assemble the other frame.

Part 2: the benches and top

Materials:

- (4) 8-foot 2x6s
- (4) 8-foot 2x8s
- fasteners (screws or nails) approved for use in treated lumber

The first step is to cut all of these boards to 8 feet long (wood directly from the lumberyard is often not exactly 8 feet long). Once that is done, cut (2) small triangles off of each of the 2x6s. These triangles should be cut off of the ends of the same side of one of the long edges (see pictures). These cuts remove a sharp corner that people often bang their legs against when walking near the table (and it looks nice to boot).

If you have a router or a planer, I recommend routing the edges or planing off the corners of the top side of the board. This makes for a nicer appearance.



Using a spare 2x4 helps line up all the pieces of the table frames. The 2x4 acts as a temporary "floor" so it ensures the table will sit flat when finished.

Next, you need to put the bench boards on the frames. If you have a helper, this part is significantly easier. However, it is not too bad to do it by yourself (as I always do).

Stand one frame up (it should be able to stand on its own). Take one of the bench boards and attach it to the frame using screws for treated lumber. Make sure that the frame is facing the correct direction (the bench support piece of the frame should face outward). When lining up the bench board, the long edge of the board should be in line with the edge of the bench support, and the board should extend 18 inches beyond the frame. Leaning the frame slightly when you attach the screws will help (see picture). Attach a second bench board to the opposite side using the same method.

Once you have (2) bench boards attached to one of the frames, bring the other frame over and slide it under the other side of the boards. Line it up as you did with the first frame, and the bench boards should extend 18 inches beyond the frame. Once everything is lined up, attach with screws approved for pressure-treated wood.

Attach the other (2) bench boards to the frames. Line them up with the other boards, and put a $\frac{3}{4}$ -inch gap between the two bench boards on each side.

Cut (2) 10½-inch sections from a 2x4. Bevel the edges, if desired, on one side. Attach one of these to the center of the underside of the benches on each side. This piece of wood will help stabilize the benches and help prevent warping.

The next part is to attach the (4) 2x8s to the top of the frame, which will form the wooden top of the picnic table. When attaching these boards, make sure that they extend 18 inches beyond the edge of the frame on each side.

The spacing between the top boards depends on a couple things. First of all, if you don't plan on putting on a tile top, you can make the overall width of the table anywhere between 28 and 32 inches; just attach the two outside boards so the edges are the appropriate width edge-to-edge and then fasten the other (2) boards spaced evenly between them.

If putting on a tile top, the width and length of the table top will depend on how wide your tiles and grout joints are. I highly recommend laying out a row and column of the tile you choose with the tile spacers in place. Then measure the width and length. Subtract $\frac{1}{2}$ inch from each of these measurements to get how long and wide your wooden table top needs to be (this $\frac{1}{2}$ inch makes up for the $\frac{1}{4}$ -inch cement board that will be attached to the wooden top).

For my tile, it measured 32 inches wide and 96 inches long. Subtracting



If working by yourself, you can balance the frame and board like this to help you attach the first board. Leaning the frame slightly when you attach the screws will help. Once both frames are attached to the first two bench boards, fastening the other two bench boards is a cinch. Make sure to leave a small $\frac{3}{4}$ -inch gap between the boards.





Attaching the top boards — the table top should measure exactly 31½ inches across if using a tile pattern that will measure 32 inches across.



The picnic table top also requires a bit of extra support across the middle between the two frames. Attach the 2x4 as shown here. This support piece will also serve as a place to attach the diagonal support pieces. Right photo: Both diagonal supports are in place and fit snugly. Inset: Cutting one end of the diagonal support pieces in this manner helps them to fit better.



½ inch from each of these measurements means that the table should measure 31½x95½ inches. I then attached the two outer boards to the frame so that they were 31½ inches outside edge to outside edge. Then I attached the other (2) to the frame equally spaced between those two. Finally, I cut all the top boards so that they were 95½ inches long (I took ¼ inch off of each side so that they stay centered on the frame).

Once the top 2x8s are in place, cut a 30-inch section from a 2x4 and attach it to the bottom of the center of the table top. Cut triangles off of the bottom corners of this 2x4 (see picture).

Part 3: attaching diagonal support members

Materials:

- (1) 8-foot pressure-treated 2x4

As is, the table is pretty easy to push over if any sideways force is applied. To remedy this, you need some diagonal support members. These will go from the center of the bench support pieces of the frame to the underside of the table.

To make these pieces, make a 60-degree cut from the 2x4. Measure

32 inches up the side of the 2x4 and make another 60-degree cut parallel to the first cut. Measure another 32 inches up the side and make a third 60-degree cut. You should now have two support pieces.

To make them fit better, you will need to cut off a chunk of one end. Measure 1 inch down from the top of the short edge of one side and use a square to make a line that is perpendicular (90 degrees) to that edge. Cut that small triangle off.

Put this under the table and fasten to the frame and the 2x4 that is under the center of the table. If you make your cuts correctly, this should line up perfectly. Do the same for the other diagonal support.

Making the tile top

Alright. Up to this point you have made a fully functional wooden picnic table that is on par with those you could buy at a store — although making it yourself is cheaper! Now you get to make it beautiful and uniquely yours. You do this by putting tile on the top. With the vast array of tile that is available, there is almost an endless number of possible tops that you can make for your table. And if you have never laid tile before, worry not, it is not too difficult.

Part 1: preparing the table for the cement board

Materials:

- (1) 8-foot 2x2
- wood glue
- 3-inch fasteners

While the picnic table is perfectly good for service as is, we are going to do a couple things just to make sure that it is ready to accept the tile. As things stand, there are (4) 2x8s that serve as the top of the table. These four boards still act somewhat independently and can move or warp in different ways. For instance, the first board might start to bend up a bit on the end, and the second board might bend downward slightly. This would



It is crucial that the end of the boards are perfectly in line before attaching the piece of wood to the end. Use clamps and scrap 2x4s to make this happen.



Here is what it looks like with the end piece of wood in place. Now the table is ready for the cement board.

make the end of the table somewhat wavy which is a no-go for tile. To remedy this issue, we must unite these four boards better.

You need to cut (2) lengths of 2x2 that are the width of the table; in my case this was 31½ inches, but this might change based on the exact tile you choose.

As the picnic table should already be to the correct length, you are going to need to trim it so that these lengths of 2x2 will fit on the end of the table without lengthening the table. The easiest way to do this is to put the 2x2 on top of the table at the end, scribe a line, and then cut to the line.



The seams where two different pieces of cement board touch should all be taped up with fiberglass mesh tape specifically designed for this job. The tape needs to be embedded in thinset mortar to function properly. The right photo is what it will look like when you are finished.

Once the end of the table is trimmed, you need to attach the 2x2. However, you must first ensure that the four top boards are in perfect alignment. Use a few clamps and some scrap wood to do this (see picture).

Finally, fasten the 2x2 piece to the end of the four boards. Apply a good quality wood glue to the end of the boards before attaching the 2x2 with screws, nails, or both.

Part 2: attaching the cement board

Materials:

- (2) sheets of cement board (3x5 feet)
- cement board fasteners
- fiberglass mesh tape
- thinset mortar

Now that the wooden table top is more unified, it is time to put on the cement board. The cement board functions as a perfectly flat surface that adheres well to the thinset mortar that will hold the tile in place. Most big box hardware stores will carry a couple different brands and thicknesses. I should also mention that regardless of brand, the sheets almost always measure 3x5 feet. You can choose whichever one is available in your area. However, just make sure to get the 1/4-inch-thick stuff; if you can

only get 1/2-inch cement board, you will need to make adjustments to the length and width of the wooden table before putting on the cement board (mainly shortening both measurements by an additional 1/2 inch).

Cutting cement board is most easily done using a utility knife with a fresh blade. Each blade will only make a few cuts before getting dull, so don't be afraid to change blades when necessary. For large pieces, you only need to score one side, bend it back to break the board along the cut, and then slice through the reinforcing fibers from the other side. However, making very thin cuts (as will be necessary for the cement board pieces on the edges of the table) can be a bit more finicky. For these cuts, score both sides well before snapping the board.

In any case, cut the cement board to size starting with the top of the table and then moving on to the edges. Attach the board to the table using approved fasteners for cement board (either screws or nails). Just make sure that the fasteners are not longer than 1 1/2 inches or they will be in danger of puncturing through the table.

Once the individual pieces are all firmly attached, you need to unify the cement board into a single unit.

This is done with fiberglass mesh tape embedded in thinset mortar. The fiberglass mesh tape is mildly sticky so it will stay in place long enough for the mortar to set. There are a couple different widths of tape, but the 2-inch-wide tape will be just fine for this job.

The first step is to put the mesh tape on all the joints. There should only be one joint running across the top of the table and then the whole edge. The edge will need to be taped so that the tape bends over the edge forming a 90-degree angle. If the tape doesn't stay stuck down, don't worry, you can press it into place when you apply the mortar.

The last thing to do is apply the thinset mortar. It will not take very much to do the joints on this table, so just mix up a small amount. Follow manufacturer's instructions for mixing up the mortar. However, for embedding the tape, slightly looser thinset is easier to work with, so adding a bit of extra water is not a bad thing. Put a trowelful of mortar on a joint and then use the trowel to spread it along the tape, aiming for a smooth surface across the whole joint.

Once all joints have been taped and mortared, wait for the mortar to set.

Part 3: laying the tile

Materials:

- tile
- thinset mortar
- tile spacers

Once the mortar on the seams is hard, it is time to tile! With any tiling project, you generally start from the center of the room and work your way out. We will do the same with this table. Snap chalk lines across the center of the table (both lengthwise and widthwise). This will keep your tile installation nice and neat as you can follow these lines when placing tile.

You will need quite a bit more thinset than you did for embedding the joint tape, but I do not recommend mixing up the whole bag if this is your first time as it is likely to harden before you are able to apply it all. I have done a whole lot of tile, and I still don't mix up the whole bag. Work to your skill level. If this is your first time, just mix up a bit of it until you get the feel for applying it and how long it takes to harden (hot and dry days will make this happen a whole lot faster).

Work one quadrant at a time, starting from the center and working out. Apply the thinset to the table with a notched trowel. Put the first tile in place, lining it up with the chalk lines. Set other tiles in place using the spacers to keep everything tidy and lined up.

Note that there are different sorts of spacers, but they all do the same thing: keep tiles a specific distance apart. I have simple plus-shaped spacers that are 1/4-inch-wide. That size joint works great for 12-inch tile. However, the tiles I used on this table are smaller, so I wanted a slightly thinner gap between the tiles. To accomplish this, I just turned the spacers sideways (the spacers are only 1/8 inch thick).

Once the top of the table is finished, it is time to tile the table edge. I used 2-inch-wide tile that has a clean bevel

on one edge for this (bevel pointing toward the top of the table). You can either apply the thinset to the cement board on the edge or to each tile itself. I chose to put the mortar on each tile and then place the tile on the edge. Although new tilers might be a bit skeptical about this, correctly-mixed mortar applied to the tile will hold the tile to the table's edge even before it is set. If your thinset is too thin, you can always clamp a 2x4 to the underside of the table so that it sticks out a bit from the edge of the table which gives the tile a surface to rest on until the thinset is fully cured.

They also make small 2x2-inch tiles that have smooth bevels on two sides. These are very useful for the corners of the edge. You can see these tiles in some of the pictures of the finished table (they are on each end of the long edge).

If the table was correctly cut, you shouldn't have to cut any tile on the top of the table. However, some of the edge pieces will most likely need to be cut to size. A small manual tile cutter should be more than sufficient for this job. Just score the top and

snap the tile to size. For my table, I had to cut four tiles for the entire table.

Wait for the mortar to set and then you can remove the spacers.

Part 4: grouting the top

Materials:

- grout

The final step is grouting the tile. Mix up the grout according to the manufacturer's instructions. Apply the grout to all joints using a grout float. Really get the grout into the joints and make sure that no joint is left with any voids.

The grout will begin to dry pretty quickly, so work as fast as you are able. Sunny, hot, and dry conditions will accelerate the drying process; cloudy, cool, and humid days will slow it down.

Once all joints have been filled with grout, wait for the grout to set a little bit (this might not take long at all depending on the conditions already mentioned). When the residual grout on the surface of the tiles is mostly dry, it is time to get sponging.



The tile is halfway finished.



Once all the tiles have been placed, give the thinset mortar time to fully cure before applying the grout. I usually wait until the day after tiling to apply the grout.

Sponging is done in a couple of rounds. The first round gets rid of the majority of the grout left on the surface and makes the joints look nicer. The second (and third if necessary) is for removing the grout haze that still hangs around after the first sponging. A large sponge is very helpful for this, but any sponge will do. Get a bucket of water, dip in the sponge, and wring it out. Make one swipe across the surface, turn the sponge over, and then make a second swipe across the surface. Dip the sponge back in the bucket of water to clean it and then wring it. Repeat this process over the whole table. Once finished, the table should look much cleaner, but there will still be a visible haze of grout on the surface.

The grout haze can be cleaned off in a second sponging. Before commencing the second sponging, make sure that the grout in the joints has dried out quite a bit (it should be pretty firm to the touch), and that the grout haze is dry. Use the same technique as described above to clean the entire surface a second time. Once

finished, there should be nothing left on the surface of the tile. If there is, you will need to do a third sponging. If you leave the grout haze on for too long, it will be next to impossible to get off, so do your best on this sponging!

While you could just do bunches of circular motions to clean off the grout (as if you were washing a car), I have found the one swipe, turn, second swipe method to result in a cleaner table faster. However, you can do whatever floats your boat (and results in a clean tile job).



You can see here a bit of extra cement board hanging below the tiles. To remove this, just use a utility knife with a sharp blade.

Part 5: trimming the extra cement board

You may notice that there is a bit of extra cement board sticking down from under the tile on the edge of the table (it depends on the size tile you choose). If you notice this, you can easily remove it using a utility knife. This completes the installation and makes for a finished looking edge.

Final thoughts

There you have it! A beautiful and uniquely-yours picnic table. It is one that you certainly can't buy in any store, but it will last for years to come and look great the whole time. An experienced do-it-yourselfer should be able to complete it in only a couple days (including wait time for mortar and such), but even a newbie should be able to finish it in a few days without too much difficulty. Have fun, and enjoy many meals together with family and guests at your new table!

Educator and researcher turned homesteader, Jaeger lives on 12 acres in the Ozarks with his wife, Wren, where he puts his extensive scientific background to work changing his small piece of rocky hillside into a functioning off-grid homestead. He uses ideas from both conventional and alternative building methods to construct all of the infrastructure on the land, and he utilizes the best of both traditional and modern agricultural methods to repair and improve the land. In his spare time, he enjoys writing informative articles to help other homesteaders and back-to-the-land types better understand and use their own pieces of land.

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THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a continuing feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share to editor@backwoodshome.com. There is no payment for jokes used.)

Three golf clubs walk into a bar. The Putter orders a beer, the Wedge orders a whiskey. The Bartender asks the 3rd one if he wants anything.

He replies, "No thanks, I'm the Driver."

I'm 81. It was suggested to me that I should be retested to see if I was still capable of driving safely. I went to the DMV. I was surprised when the examiner told me he could determine that with a simple question.

I asked, "What's the question?"

"You're driving down the road and you barely have control over the vehicle you're driving. Suddenly, a 90-year-old man and an 8-year-old boy step off the curb. You're going fast. You have to make a decision. Tell me what you'd hit? The answer is important."

I thought about it. "The boy has his whole life ahead of him; the old man has already lived a full life, so I'd hit the old man."

"You took a long time and you still came up with the wrong answer. Turn in your license."

I asked, "What's the right answer?"

"The brakes."

My wife poked me hard with her elbow the other day and screamed, "You're not listening to a word I'm saying!" I thought that's an odd way to start a conversation.

Four friends played golf for three decades.

When they were in their sixties, they would finish their morning golf and decide where to have lunch. One player said, "Let's go to Hooters. They have cute waitresses and good wings." And so they went.

In their seventies, they finished their morning golf and decided where to have lunch. One player said, "Let's go to Hooters. They have clean bathrooms." And so they went.

In their eighties, they finished their morning golf and decided where to have lunch. One player said, "Let's go to Hooters. We've never been there." And so they went.

A blond jock, fresh out of a state-approved teacher prep program, lands a job as a PE teacher for 16-year-old boys.

Out on the field, he notices one boy standing alone while the others are running around having fun kicking a ball.

Taking pity, he walks over and says:

"Hey, kiddo, you okay?"

"Yes."

"You know, you can go play with the other kids."

The boy replies, "No, it's probably best I stay here."

"Why's that, son?" the blond asks.

The boy squints at him and says ...

"Because, Sir ... I'm the goalie!"

Building a milking stall and calf pen

By Don Lewis

Since we began walking the path toward self-reliance more than 30 years ago, one of the “tools” of that journey was cattle, both for meat and for milk. The milk part of the equation wasn’t simply for the milk itself, but for the other products that come along with it: butter, yogurt, and a variety of cheeses.

We had a full milking setup at our last homestead. But five years ago we downsized to a smaller place, which had nothing by way of livestock infrastructure. We’ve been building as we go to accommodate our tiny herd of four animals.

When our Jersey heifer Maggie had her first calf two weeks earlier than anticipated (bringing our herd up to five animals), we had to hustle to complete a project we’d discussed but hadn’t started: a milking stall and calf pen.

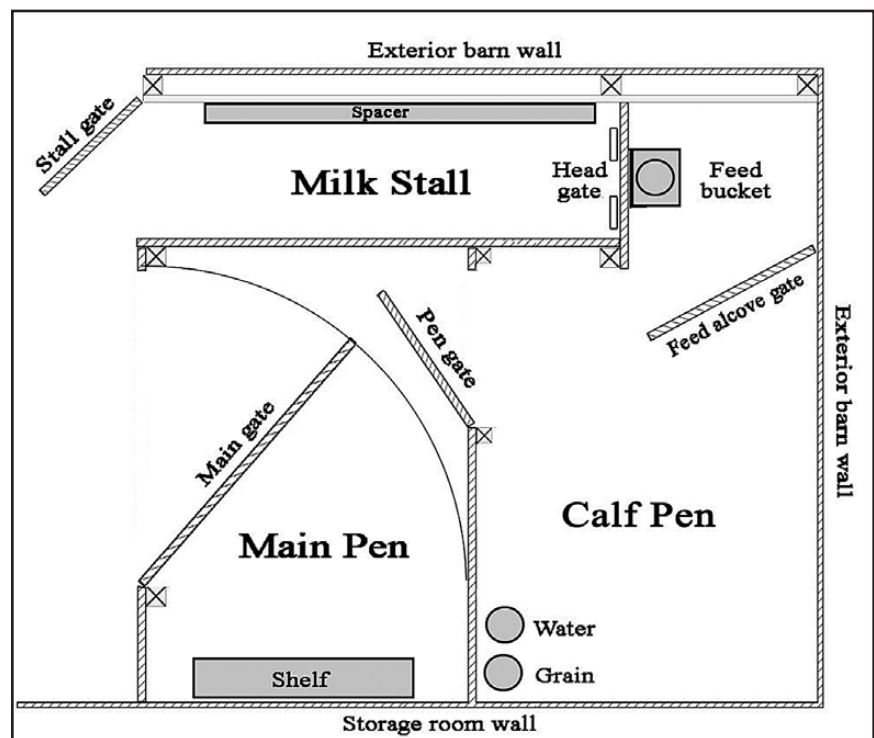
The need for a milking stall is obvious. It would provide a narrow place where Maggie could be secured while my wife milked each morning. The calf pen was to keep the calf confined at night so Maggie had enough milk in the morning. We practice once-a-day milking.

Considerations

The trouble is, we are limited in the amount of space to dedicate to cattle infrastructure. We only have one barn, which must fulfill multiple purposes: workshop, tool shop, storage room, hay storage, and livestock. The spot designated for the livestock is narrow (10x30 feet) and, like the rest of the barn, must be a space with multiple purposes: storing feed bins, providing shelter from the elements, and —



We practice once-a-day milking. Here are Maggie and her calf after the morning’s milking is finished. There is plenty of milk left for baby.



Milking stall and calf pen schematic

at the far end — infrastructure for a milking stall and calf pen.

The problem of how to orient and position these two conjoined pieces of infrastructure was the hard part. We had about a 10x11-foot section of the barn in which to place these units, Tetris-like. We had a number of requirements.

- The calf had to be separated from Maggie only by a single gate or rail wall, so mama and baby could see and smell each other, but not touch.

- My wife had to have her back protected from the other inquisitive livestock when she was sitting on a crate while milking.

- Because Maggie was a first-time mom and had never been milked before, we needed to build the stall strong enough to handle a restless cow and equip it with ways to keep her locked in while milking.

On paper, we sketched various configurations to see how best we could incorporate all the elements we wanted within the available space, while keeping construction as simple as possible. The final plan incorporated an inner calf pen, an outer milking pen, a milking stall, and a tiny gated alcove which holds the feed box. These components are all interconnected. After finalizing the floor plan, we started building.

The barn already had a concrete floor that could easily be marked with construction lines. The location has three existing walls (two of which are the barn's exterior walls, and one interior wall).

While a concrete floor had certain advantages (like easy cleanup), it also provided a couple of challenges that had to be addressed. One issue is the difficulty in fastening wooden posts to concrete. We had to make sure we had the proper tools to accomplish this task.

The other issue absolutely stumped us for the duration of the construction. Not to be too indelicate, but cows tend to produce impressive



This is the space in the barn we have to work with to make a milking stall and calf pen.



Upright posts tied overhead to 2x6 rafters for strength

quantities of waste, both liquid and solid. High-pressure urine streams tend to splash on concrete. This may sound trivial or silly, but in fact it's a serious consideration for both sanitation (for the milk) and comfort for the milker (my wife).

But a concrete floor was what we had, so we worked out ways to overcome these challenges.

Construction

Although wooden infrastructure could be connected to the concrete floor using concrete nails and a power hammer, these connections aren't as strong as drilled piers and posts. For this reason, we made a "superstructure" of overhead rafters connected to posts in critical areas to provide additional support for the milking stall, pen walls, and various gates.



Basic outlines for milking stall, interior calf pen, and exterior milking pen

We marked out the stalls and pens on the concrete, and began construction by using 2x4 pressure-treated lumber to form the foundation for the interconnected components. I fastened these 2x4s to the concrete with concrete nails and a power hammer.

The milking stall was obviously the most important component of the whole construction, so we built it first. It had to be long enough for

the cow to enter it fully, and narrow enough that she was confined without being able to shift her body away from the milker. The milking stall needed a head gate at the far end to lock the animal in during milking. We took measurements of Maggie nose to tail, and determined the stall length (from entry to head gate) was 7 feet.

I began by power-hammering 12-foot pressure-treated 2x4s to the

concrete floor to form the base of the milking stall. This wooden foundation allowed me to attach the necessary upright posts to create the rest of the infrastructure. I also utilized the existing overhead horizontal girts on the barn wall to strengthen the structure vertically.

I built a “pony wall” bumper to define the interior wall of the milking stall. The purpose of this pony wall was to keep the cow from moving too far away from the milker. The bumper wall is 30 inches tall, high enough to keep a kicking cow from accidentally getting a leg caught between the bumper and the exterior wall.

We made the milking stall itself 26½ inches wide (Maggie’s width). The milking side, where my wife sits to milk, needed to be as open as possible to give her free access to the udder. For this reason, there is only a single horizontal 2x6 set 40 inches above the floor to support the upper portions of the stall infrastructure.



This is the pony wall forming the inside bumper of the milking stall (left). Because the milking stall ended up being too wide, we later inserted a 4x6 pallet (right) as a bumper in the milking stall; note pipe insulation on edge of pallet to protect Maggie from the sharp edge.



This 40-inch height is below Maggie's back height, which constrains her from moving sideways.

To determine the depth of the main pen where my wife sits to milk, we brought Maggie in to the cattle stall and had my wife sit on a crate as if she were milking. From this, we decided that the main pen depth should be 4 feet, 4 inches. Using that measurement allowed me to then set the base-plate separator between the main pen and the calf pen.

Once the milking stall was roughly finished, and even before the rest of the infrastructure was in place, we started training Maggie to enter the stall by rewarding her with grain. It didn't take long before she entered the stall eagerly.

To support the pen walls, I created additional support posts to stabilize the walls and pen gates. To achieve this, I made additional vertical posts and placed them at each wall/panel intersection, as well as in each place where a gate would need support.

I tied every one of the posts overhead to the 2x6 rafters. By tying the posts to these rafters, the posts were



The outer milking pen gate is strengthened with 2x4 crosspieces.

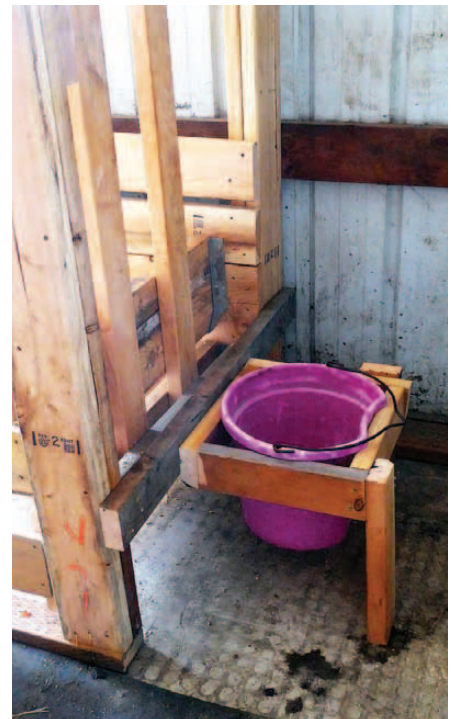
locked into place and secured at both the top and bottom.

With the initial structure in place, it was time to add the head gate and pen gates. The lower portion of the head gate consists of two 2x10 boards fastened horizontally across the two posts at the far end of the milking stall. To confine the cow's head, I

bolted two vertical 6-foot 2x4s to the lower 2x10, with the bolts acting as hinges that allow the 2x4s to pivot. These vertical 2x4s can be locked in place at the top with removable bolts, allowing a space between them 6½ inches wide. This spacing is narrow enough to keep Maggie's head trapped, without being so tight as to



The base of head gate: 2x4s with bolts act as hinges so 2x4s can be moved and locked in place. The grain bucket is in the alcove on other side of head gate.





*Current setup with all the gates closed (top) and all the gates open (bottom):
The gates on the right form a chute to direct the calf into the calf pen.*

choke or injure her. The head gate keeps the cow constrained during the milking process.

On the other side of the head gate, I made a box frame close to the floor that supports a grain bucket. When Maggie is in the milking stall with

her head constrained by the head gate, she still has enough vertical ease of movement to reach the grain bucket.

The next task was to make the various gates. I wanted to make the main gate long enough that when it swung open, I could latch it to the panel sep-

arating the main pen from the calf pen. This way, when open, the main gate created a chute, making it easier to drive the calf through the main pen and into the calf pen.

I also made a plywood gate at the milking stall opening that could be closed behind the cow. While it wasn't intended to confine Maggie in the stall (the head gate does that), the stall gate serves a purpose. It keeps the other cows from bothering Maggie when she's in the milking stall.

I made the main pen and calf pen gates using 2x4 frames with ½-inch plywood slats. Finally, I closed off all the other open spaces on the pens with either salvaged 1x6 pine rails or a combination of plywood slats and 2x4 rails.

I installed a heavy steel eye-bolt near the base of the post which formed the entry to the milking stall. This eye-bolt would be used to tie Maggie's back leg down to limit her ability to kick either the milk bucket or the milker.

The last step was installing some inch-thick rubber stall mats into the calf pen so the calf didn't have to sleep on cold hard concrete.

In practice

Now it was time to test the facility. Since Maggie and her week-old calf had never been separated, that first attempt to confine the calf was something of a rodeo and ultimately a failure. With considerable persuasion, we got the calf into the inner calf pen and closed all the gates. Needless to say, both Maggie and her calf were unhappy at the separation. While that wasn't a surprise, the efforts made by Maggie to rectify the situation made us seriously doubt the ability of the outer main gate and the milking stall gate to withstand her efforts to get to her calf. The calf squeezed into the small alcove where the feed bucket for Maggie was located and attempted to crawl through the closed head

gate, clearly a dangerous situation. Additionally, the milking stall gate was too low and we were concerned Maggie might try to jump it.

Considering all these potential problems, we knew within 30 seconds that we couldn't keep the animals apart for the night or they might injure themselves. We released the calf and made a list of things to improve. The next morning I began addressing the deficiencies.

- Main stall gate: I added 2x4 rails to the outside of the gate to strengthen it.

- Milking stall gate: I constructed an addition to the top of the gate to raise the height, so Maggie couldn't get her head over it.

- Feed box alcove: I installed a plywood gate to keep the calf out.

That evening, we tried again. This time we had no problems keeping the calf separated. With the calf safely locked into the calf pen, we prepared for our first milking the next morning.

Early the next morning, my wife and I went to the barn. We quickly got Maggie into place, with her head through the head gate and her rear leg tied to the eye-bolt anchor. My wife sat on her crate and started milking.

Immediately we noticed how far over she had to lean just to reach the udder. Maggie, of course, didn't know what was happening and kept restlessly trying to kick or move her body away. Understandably jumpy at the thought of being at the receiving end of an irritated hoof, at one point my wife sprang up from the crate and *cracked* her head on the overhead stall rail so hard we thought she had a concussion.

Despite all the problems, my stubborn wife insisted on continuing the milking attempt. She was able to get three-quarters of a gallon of milk during that first morning, which wasn't bad.

After the animals were released from the milking stall and calf pen, we started assessing the issues. The

reason my wife cracked her head on the overhead rail was because the milking stall was too wide and the cow was too far away. My wife was leaning in too far to reach the udder, which placed her head directly under the overhead support.

We needed a way to narrow the width of the milking stall. Fortunately we had a wood pallet 4x6 feet in dimension, and I fastened this to the inside of the milking stall. This narrowed the stall width down by 4 inches. These 4 inches were all that was needed to bring the cow comfortably close and keep my wife's head from being directly under the overhead rail. I stapled a piece of pipe insulation to the entry edge of the pallet to keep the sharp wood edge from scratching Maggie as she entered the stall.

The one issue we hadn't resolved was what to do when Maggie urinated or defecated while in the milking stall. We tossed around a number of ideas: An elevated platform with a grate and a "litter box" underneath? A tub partly filled with sawdust placed right behind Maggie's back legs? Neither seemed ideal, but we couldn't think of anything else.

As it turned out, the whole issue was easy-peasy to solve. On the sec-

ond morning of milking, I spontaneously shoveled a small pile of sawdust behind Maggie's back feet just in case she let loose ... and it worked! We create loads of sawdust from our home woodcraft business, so this resource is never in short supply. It's the same sawdust we had been using for months to sprinkle on the barn floor to absorb urine, after which it could be easily raked up and put on the compost pile.

Why we tried to overly complicate this issue is anyone's guess. Now my wife keeps a full bucket of sawdust in the main pen at all times in case Maggie lets loose in the milking stall.

The next day, my wife was able to perform a complete milking without a problem, and we deemed the milking facility a success.

In the three months since initiating the milking routine, we have had no further problems. Both Maggie and her calf are now well trained to enter the facility without a problem. (Once the calf learned about the wonders of grain, she positively *sprints* into the calf pen each evening.) Our once-a-day milking regimen yields about one gallon of fresh milk per day, more than enough for our needs. Δ



Maggie in the milking stall — before we added the bumper to the wall

How to safely pull a calf

By Heather Smith Thomas

If you raise cattle, sooner or later you may need to pull a calf. Many people who have been ranching a long time have fewer calving problems than they had in the past, because they've been selecting heifers of appropriate size and maturity, and selecting bulls that sire smaller calves — especially for use on heifers. There are still situations, however, in which a cow or heifer will need assistance.

Most cows or heifers progress normally through the stages of labor but sometimes you need to assist if nothing is happening or the birth is too slow. Heifers, especially, may need a little help if the calf is large. A calf's most deadly enemy is time. He usually has roughly three to four hours of oxygen supply after the cow begins second stage labor because the placenta will start to detach from the uterine lining. If this time limit is approaching and the cow does not start hard straining, or has been straining for an hour with no visible progress, she needs assistance.

If you see feet, it's easy to assess progress. But when everything is still internal, you don't know if the calf is presented correctly and is just too large, or is breech, or some other malpresentation. Determine whether the calf is too large to be pulled (and call your veterinarian) or if you can safely pull the calf. If you see progress — the water bag, then the feet, then the nose — you can give the cow a little more time.

Proper restraint

To check the cow you can tie her up if she's gentle enough to put a halter on, or restrain her in a stanchion



Pixabay / Ivabalk

If you raise cattle, knowing how to pull a calf before you need to will lead to a better outcome.

or squeeze chute. If you decide to pull the calf, she should not be in a squeeze chute because she needs to lie down. If she goes down while you are pulling the calf, most chutes put her in a bad position, making it almost impossible to pull the calf, and may also injure the cow and/or calf. Some chutes are designed so that if a cow goes down, you can open the sides to allow her to lie on her side, with a headcatch that won't put a bind on her neck. If a cow goes down in a chute where the sides don't open or the headcatch restricts her neck, this can be very hard on the cow. If the cow gets stuck in the chute, it will be almost impossible to get her up and get her out.

Restrain the cow to reposition the calf, and get everything ready for pulling (with obstetrical chains on the calf's legs) then put a halter on her and let her out of the chute so she can go down when you are pulling the calf. The best position for a calving cow is on her side. When she's

on her side, gravity is working in her favor instead of against her as the calf comes up over the pelvic brim into the birth canal.

The cow can help you a lot with her straining when she is flat on her side. If she's standing, or went down in an awkward position in a squeeze chute, you lose that advantage. Some people think a cow must be completely confined, but once you start pulling the calf, the cow starts straining harder and she's not going to run off. She may be quite mobile if she's still in early labor when you tie her up, but once the calf is in the birth canal the cow usually settles down to hard straining.

She may lie down on her own, but if she doesn't you can put her gently on the ground. It only takes a few minutes to lay a cow down using a lariat around her body if you have someone helping. You should already have chains on the calf's legs, and you can put the rope on the cow's body in a double half hitch. One per-

son pulls on the rope, and the other person pulls on the chains. This stimulates the cow to strain, and she wants to lie down. The key is pulling on the chains at the same time you pull on the rope. Once the cow is down, you can lay her on her side before starting to pull the calf.

Make sure you can pull the calf

If the calf's feet are showing at the vulva and its head is there (maybe the nose is showing) but the cow isn't progressing, check her to see if there is room in the birth canal. If when you reach into the birth canal you can't fit your fingers over the calf's head (between his head and the cow's pelvis) it's too tight.

The same applies if the calf is coming backward. If you can't run your hand around the hips as they start through, the calf won't fit. If you have any doubts, call your veterinarian before you try to pull. If you make that decision early, before you pull and possibly injure the cow and/or calf, you are more likely to end up with a live calf.

Another clue that a calf may be too large for vaginal delivery is the feet crossing. If it's a normal presentation (front legs extended, with head between them), but the legs are crossing over each other, it's usually because the shoulders and elbows are too wide coming through the pelvis.

Another rule of thumb: If one person, pulling on front legs alternately, can get the calf's feet about four to five inches past the vulva, outside the cow (with the head coming) it should be a successful vaginal delivery. If it's a posterior presentation and you are pulling each leg alternately, if you can get the hind legs out past the hocks, it should also be a successful vaginal delivery. The widest part of the calf is already coming through.

If the calf's front feet are in the birth canal, but not the head, and the head keeps turning back when you

try to bring it around and pull the calf, this may mean there isn't enough room. If you've been trying to deliver a calf for 20 minutes without progress, get help. The longer you try, the more exhausted you and the cow will be, and the less chance for the calf to be alive by the time it is delivered. You need to know when you can safely pull a calf and when you need veterinary assistance or a C-section.

Obstetrical chains

It's always better if you can pull the calf by hand (with one or two people pulling on the handles, after properly placing obstetrical chains on the calf's legs) than having to resort to a mechanical calf puller; you can take your time and are less apt to injure the cow and/or calf. Place the chains in a double half hitch with one loop above the fetlock joint (mid cannon)



Although it's not always possible, it is better to pull the calf when the cow is lying down.



Obstetrical chains and handles

and one below, to spread the pressure and reduce risk of injury to the joint and risk of fracture.

The chain should be on the top of the leg, in 12 o'clock position if the calf is coming normally. This puts most of the force and stress along the strongest part (and angle) of the leg bone and is better than underneath or to one side of the leg. Having the chain on top of the leg provides the most leverage when you are pulling, and is safest for the calf to prevent injury to the leg.

Even if you can only get one loop around the leg when first applying the chains (when the legs are still inside the cow and you don't have much room to work), after the legs are coming into the birth canal you'll have more room to reposition the chains before you put a lot of force on the calf. Obstetrical chains are generally better than ropes or straps. It's easier to clean and disinfect chains between uses, and a chain doesn't cut off limb circulation as much or create abrasions like a rope might do.

If you have to correct the calf's position before it can come into the birth canal properly, place chains on the legs before you push the calf back into the uterus to reposition, because

when you start to pull, everything that was in normal presentation may shift around and is no longer normal. You thought you had that leg, and then it goes back, but if you already have a chain on it you can keep it from getting out of position. Put a chain on, push the calf back in, and then correct the malpresented limb.

If the calf is coming in forward position, make sure there are two

front legs and a head before you attach chains and pull. If one leg is back, you can't pull the calf; it's too wide to come through and puts too much force on the calf.

Make sure the two front legs belong to the same calf in case it's a set of twins. Run your hand up the inside of one leg to where you can touch the chest and head and follow it down the other leg to make sure the chains are on the same calf.

If a calf is coming backward, make sure you have both hind legs and a tail. Find the tail and make sure it's not up over the back of the calf, or it will be harder to pull the calf and may injure the cow or break the calf's tail head.

If when you check inside the cow your hand will fit over the calf's head (you think the pelvic area is large enough), but the birth canal is tight, take time to stretch it before trying to pull the calf. In first-calf heifers, there will be tight rings of connective tissue right inside the vulva. Even though the feet may come through, these rings must stretch a lot more before the head can come through. Put your

Lubrication

Before you start to pull, put lubrication around the calf. By the time you've put chains on the legs, the amnion sac has broken and its fluid lost. Natural lubrication for the calf is diminished and you should add more. You can get obstetrical lubricants from your veterinarian. With your hands you can often put lubricant in the first 12 inches, but you can't reach farther than that.

Another method for adding lubrication is with a clean hose/tube inserted into the birth canal alongside the calf. You can attach a big syringe to the tubing, or have it connected to a hand pump on a bucket of lubricant. Before assisting the birth, the clean hose can be inserted and a quart or two of lubrication pumped in. If you need more as you assist the calf, you can put in more.

One caution: Don't apply lubricant until you have determined that the calf will fit through. If the cow needs a C-section, you don't want lubricant in the uterus. Some types of lubrication can be harmful for the cow if it gets into the abdominal cavity during a C-section. Wait until you know you can pull that calf, and then use ample lubrication.

arms in, and stretch that tissue before you pull the calf.

Clasp your hands inside the birth canal and push your forearms outward multiple times to stretch these tissues. Keep doing this until you are sure you can get the calf's head through. It might take five or 10 minutes. The important thing is not the amount of force, but the duration. Stretch, hold for 20 seconds, relax for a few seconds, and then stretch and hold again. Change arm positions to get maximum dilation each time. In cases where the calf is malpresented, you may not need to do this because by the time the calf's position is corrected, the cow is sufficiently dilated because you've had your arms in there for a while already.

With heifers (or cows delivering a very large calf) it also helps to stretch the vulva as the calf's head comes through. Often the birth will progress normally until the nose is showing, then it takes a while for the calf's forehead to stretch the vulva sufficiently to come through. Once it does, the birth progresses swiftly. When pulling a large calf, it helps to have someone stretching the vulva (fingers between the vulva and the calf's head and pulling the vulva back, peeling it back away from the head) as the calf is pulled.

Once you get chains on the front legs and start pulling, work the calf out gradually, pulling more on one leg and then the other, one at a time. The idea is to advance each leg a couple inches and work the shoulders through the birth canal one at a time. Then they won't be as wide as when pulling both legs evenly. This belly-crawl can help you get the calf out, and also limits the amount of overall pressure applied to the legs.

Make sure the calf's elbows are through the pelvis before applying too much pressure, or they may hang up and make the birth difficult or impossible. You can often feel or hear a pop as that elbow comes through

— and the leg is straighter. Then you can put equal pressure on both legs as you pull the calf. Make sure the calf's head is starting through the birth canal and not turning off to one side as you pull.

Two mistakes people often make are pulling on both legs equally at the start, and pulling straight back the whole time. Once the shoulders are

out, you can pull on both legs at the same time.

One way to prevent hiplock is to rotate the calf after you get the head and front legs out when the ribcage is coming through the cow's pelvis. When the calf's hips are just about to come into contact with the cow's pelvis, try to twist the calf about 45 degrees. This puts the calf's pelvis



With heifers (or cows delivering a very large calf) it helps to stretch the vulva as the calf's head comes through.



When this calf got hung up at the hips, we pulled straight down toward the cow's feet to bring his hips up higher where there was more room for them to come through her pelvis.

diagonal to the cow's pelvis; the widest part of the calf will be coming through the widest, longest part of her pelvis, where there is the most room.

Only pull when the cow is straining and pushing. If you keep pulling while she's taking a break, this may damage her reproductive tract. It may take longer for her to heal and recover from calving, and she may not breed back. Rest when she rests, and pull when she's pushing. Combining her force and yours makes it easier for both of you.

Try to determine early on whether you can get the calf out yourself or need professional assistance — a C-section or fetotomy (cut up the dead calf to bring it out). All too

often, people keep trying to pull when it's too late. If there is no progress within about 20 minutes of effort, reassess the situation and whether the calf is still alive.

Even if there is no jerking or resistance by the calf when manipulating the legs, you might get a response by pinching between the toes. If the calf is dead, it might be easier on the cow to have your veterinarian perform a fetotomy rather than have the cow undergo surgery.

When you are pulling and the calf gets out to the ribs, stop pulling for a moment. As the ribcage is squeezed through the birth canal, fluid in the calf's airways will be squeezed out. Give it just a little time. Once the rib-

cage has cleared the birth canal, it can expand and the calf can take a breath even if he hiplocks; this can buy you time to get him on out because he can start to breathe if he needs to. It will be easier for him to start breathing without that fluid in his airways. That's another reason not to get in a hurry, and allow that natural expulsion of fluid.

If the calf is coming backward, however, when the hips are coming out, the umbilical cord is being pinched off and he needs to start breathing. If his head is still inside the cow, he will suffocate and die. After the hips emerge, you must get the calf out as fast as you can. This is when the extra traction with a calf puller can make the difference of life or death for that calf.

Using a calf puller

If you need to use a calf puller, use it properly. If you haven't used it for a long time, make sure it is in working order and lubricated before you need it. This is a good tool if you are working alone and are not a strong person. A calf puller is also useful for when it's a backward calf and you must pull quickly at the end, to make sure the head is not still in the birth canal after the cord breaks or pinches off.

Make sure there is room to use the puller. If the cow is in a barn or stall, make sure her hind end is not close to the wall. If she's in a headcatch, let her out before you use the puller. Always make sure there is room for her to lie down and have space behind her to work the calf puller. You don't want her stuck in a chute or headcatch.

It's best for the cow to be flat on her side before using a calf puller. This makes it easier to use. Gravity is against you when she's standing; the heavy uterus and calf are resting on the abdominal floor.

If you try to pull a calf when the cow is standing, you don't have as much control on how you can handle

the calf puller. If she's down, and the calf is coming head-first with front legs extended, align the base (butt plate) of the calf puller just below the cow's vulva. The chains around the calf's legs can then be hooked to the calf puller.

A calf puller can put much more pressure on the calf than a person pulling by hand. Always have a double half hitch on the legs before you use a calf puller. There is more risk of injury to legs and joints. The mechanical puller has enough force to pull joints apart or fracture leg bones. Put one loop above the fetlock joint and a second loop (half hitch) below it, for two points of pull, spreading the pressure so it doesn't all come in one place.

It's best to have a calf puller that can pull alternately on the legs, one at a time, walking the shoulders through the pelvis — like you would when pulling by hand.

When using a calf puller, only ratchet when the cow is pushing. Pull gradually, pulling as the cow strains and resting when she rests, rather than a steady pull — the same rule of thumb as when pulling by hand. You can push down on the handle of the calf puller, especially once the calf's head is coming out. This helps bring the calf up and over the cow's pelvis in an arc. Pulling straight out doesn't take advantage of that natural curve and tends to jam the calf against the pelvis.

Push the handle down and put a little tension on it, and when the cow starts to push again, take up more with the chains. When she stops, stop ratcheting and push down again. This holds your progress.

A cow's pelvis is shaped like an oval in which the vertical diameter is greater than the horizontal diameter. The widest part of the calf's hips lines up with the widest vertical diameter of the cow's pelvis.

Once the last rib of the calf has cleared the vulva, try to determine

whether you need to rotate the hips. It doesn't matter if this takes a few minutes because you can get the calf breathing; his ribcage is free of the tight birth canal and can expand. The pressure is off the ribs, but there is now pressure on the umbilicus, so he must start breathing. If you have taken time to let fluids come out of his nose as the ribcage was compressed going through the birth canal, he can breathe. This happens naturally as a calf is born, but can be hindered if you keep steady, unrelenting pressure on his legs with the calf puller.

Always remember that the amount of force you can apply with a calf puller is far greater than what can be applied by human strength. A calf puller can easily apply as much force as four strong men pulling together — which is too much, and can damage the cow and/or calf if not appropriately applied.

Pull at the correct angle. The calf has to come up over the pelvic brim and then down. On a frontward calf, pull straight out at first. After the ribcage comes through you can pull downward, to raise the calf's hips higher as they come through the pel-

vis. Don't pull downward too soon, or you may injure the calf's ribs.

When pulling a backward calf, a common injury is broken hind legs (pulling the legs down against the cow's pelvis). Don't pull downward until the hind legs are out, and don't pull downward very much or the ribcage may catch on the cow's pelvis. One problem if you continue to pull straight out is that the way the cow's pelvis tilts, you are putting unnatural pressure on the calf's spine, with risk for spinal fracture. If the calf is backward, you need to get him out quickly, but you should still start slow.

There are several kinds of calf pullers. Know how to operate the one you have, especially if you need to pull a backward calf. Some calf pullers have extensions. If he's backward, put on the extension bar. If you don't have an extension bar, pause briefly once the hocks are out (before the hips emerge and the umbilical cord is compromised) and reposition the chains; undo the half hitch above the feet and put the chains above the hocks. This will give you more length of cable to winch out a long-legged calf and get him out alive. Δ



Using a calf puller on a backward-presented calf

HOGGING IT UP

By Tanya Kelley

It's said that chickens are the gateway drug to farming. If that's true, raising a hog is a logical next step before moving on to hard-core farm addictions like a dairy cow.

Besides the obvious benefit of bacon, hogs offer beginning farmers a quick return (five months from feeder pig to your plate) and lots of room for mistakes while learning.

First things first

Reserve your butcher date and you'll know when you can buy your pig. Many butchers are booked up to a year in advance. Buy the pig first and you may end up waiting for a date until your porker is old, tough, and only good for sausage.

Take time to educate yourself so when you're ready to buy you'll know what you want. Obviously, taking a hog-smart friend shopping with you is a huge plus, but that's not always possible.

Even if you don't have kids, 4-H hog shows at the fair are a great learning opportunity. Judges explain in detail what makes a good hog and what the faults are, because they are educating the youth. The judges focus on what makes the most perfect hog. You won't necessarily buy a perfect hog, but you will at least know whether the hams look good, whether the hog is too fat, and so on. If you have questions, most judges and participants are happy to answer questions — after the show.

While you're at the fair, talk to people, get business cards. You'll know where to look when you're ready to buy. However, when you buy, don't



An IBC tote with an entrance cut out is adequate for pigs while they are small.

buy five months before the fair. Many farmers charge a premium price for potential 4-H pigs. Buy after the 4-H participants have all been served and you'll stand a better chance at getting slightly lower quality pigs for a better price.

If getting a pig from a farm isn't an option, check out feeder pigs at the local livestock sale barn. Listen carefully — sometimes animals are sold "by the head" and sometimes by the pound or hundredweight. Ask in the sale barn office how it works at that particular auction. Attend several times to gain a firm understanding of what is going on. The sales process moves at lightning speed and the auctioneer's chanting can be confusing. It's easy to make a mistake.

Sometimes you'll want one pig and a herd will run into the ring. If you only want the one, bid. Most likely

you'll get dirty looks, but you *can* say, "I only want that *one*." Although, I recommend getting two; pigs are piggy and will eat more if they have competition. As one auctioneer argued with me when I bought a single pig, "But two'll do better!"

Pay attention to the genders. You want a gilt (female) or barrow (castrated male). If you get a boar, you'll need to plan on getting him castrated. Familiarize yourself with breeds too. Most pigs at the sale barn are just crossbred meat hogs and that's fine. But if you buy a Juliana, potbellied, or a Kunekune, you're not going to end up with the pork you're expecting. Until you know for sure what you are looking at, skip any hogs that are selling at a super low price; there's a reason they are cheap and you might not have the experience to understand why.

Getting ready

Now, before you buy, it's time for some work. You need a pig-proof pen and house — all of which your pig will do its best to destroy. My husband calls pigs "land sharks" because of the amount of damage they can do with their snouts, even while running. Personally, I don't think sharks are nearly as destructive.

Fencing your pen

Plan A was pasture-raised pigs. It sounds so healthy and natural. And, for the pigs, it is. Just not for me.

I have seen pigs happily browsing around in pastures — pastures that have really strong fences with fierce electric fence lining the inside perimeter. Even really good wire fence is no match for a determined hog. However, I don't have a really good fence. It's ... adequate, for most animals. It seemed like lining the perimeter with a jolting electric fence would solve the problem. After all, you don't want the pigs to ever touch the woven wire fence.

We trained our pigs to the electric fence — in a small pen, with very sturdy walls. We even ran a strand of electric in the center of the pen to restrict the pigs to half the pen. Once they were true believers, we moved them to the bigger, woven wire pen.

At first, all seemed well, other than the fact that the pigs were destroying the ground. Within two days, the pigs found out that they could push dirt up into a mound to ground out the electric wire. And once the wire was grounded, it didn't take long to make a hole in the woven wire. Never again did they believe they couldn't destroy the wire, even if it meant getting zapped a few times in the process. And they thought our neighbor's garden was the best place to go.

Time for plan B. We created an inexpensive and quick-to-put-up, pig-proof pen. Sometimes, desperation drives one to great inventions.

Four 12-foot cattle panels, eight T-posts, some barbed wire, and scrap electric fence wire make a fine pen. To start, we loosely spiral-wrapped the bottom wire of each cattle panel with barbed wire. This was to deter the pigs from rooting under the cattle panel — any rooting resulted in a good poke in the snout.

Once the panels were ready, we pounded in four T-posts 12 feet apart to form the corners of a square. Then we pounded one T-post centered between the corner posts. Then we used the electric fence wire scraps to secure the panels to each post. *Lots* of wiring here — pigs will push on fence, and if anything gives, they push more.

We wired everything except one corner, where we let the pigs in. Once the pigs were in the pen, we wired that. Usually we don't open it again until time to transport to the butcher. If we need to go in the pen, we climb over the fence at a corner or next to their house. We don't want the pigs to even think that there might be a way out.

One other thing we included was a low spot in the ground. Pigs do not sweat. When it's hot, they need a wet

place to wallow in the mud. Once the pigs were in the pen, we added water whenever it looked dry. It didn't take long for the pigs to turn it into a disgusting, slimy mess. Complete Hog Heaven.

Housing

Timing your pig purchase so your pigs arrive in late spring and are safely in the freezer by mid-fall means you can get away with minimal housing. If you're in a cold climate, you'll need something more weatherproof.

Our three-sided pig house is made of pallets, with a raised solid wood floor (so the pigs can get out of the mud if it's a rainy year) and a metal roof. Nothing fancy. We do our best to make sure there's nothing the pigs can hook their snouts on to pull it apart. Even so, they still manage to tear things up.

For young pigs and bad spring weather, we have an IBC tote with an entrance cut out for warmer housing. It's light enough that we can easily drop it in and lift it back out when the pigs are bigger and don't need it. Once they get big enough to start moving it around, it comes out for sure.



Nipple inserted into watering barrel



Pigs need a place to wallow in the wet ground in order to keep cool.

Feed and water

If it moves, a pig will move it — out of your reach — so you have to go in the pen where you will be greeted with hoggy kisses and slippery footing.

Hogs love water, and if they can use it to make more mud, they will. It's a constant fight to keep clean drinking water available for them. We found that a plastic food-grade 55-gallon drum works well. We drill a hole in the side and pop in a nipple waterer. We place the barrel *outside* the pen, with the nipple protruding through the hog panel. It's on three concrete blocks, so the nipple is about nine inches off the ground. We put two more T-posts on the side opposite the fence and wire everything together. Even though the barrel is outside the fence, the pigs have managed to dump it if it isn't secured. Once the barrel is filled, it doesn't take long for pigs to figure out how to drink.

Feeding is equally challenging. Pigs love to stand in their food and fight over it. Nobody can waste feed like

a hog. There are pricey hog feeders that can prevent waste, but my budget never seems to have room for one.

However, feed is expensive. I feed the hogs in cheap rubber pans and I stand guard, at least for a few minutes, while they eat. Anyone putting a foot in the feed pan or shoving another hog around gets a fast poke with a stick. After a few minutes, things settle down and they eat nice. After they've eaten, I pull the pans back out of the pen so they don't get moved out of reach. It's more work, but it's cut the feed bill in half. After a few weeks or so of having to follow the rules, the pigs are mostly trained not to stand in their feed. Mostly.

As for the feed itself, we use a commercial feed from our local mill. Also, we feed all the extra milk from our cows and all the food and garden waste we have, but we do not feed them meat. I don't worry about how old the food is or how spoiled. The pigs will eat it and I've never had a problem.

Bringing home your little bacon seedling

Typically a feeder pig will weigh 40-50 pounds when it is weaned. When to get your pig depends, in part, on what you will feed your pig. It takes about five months to get them to an ideal weight of 240 pounds if feeding a commercial feed specifically formulated for maximum growth rate. You will see longer, slower growth if you're feeding a diet heavy on garden produce and random expired food products.

When I'm sending hogs to the butcher, I plan for six months of growing time. That's a month longer than ideal, but it allows room for any slow growth. I'd rather butcher a pig on the large side than on the small.

The disadvantage of a larger hog is that once it reaches 240 pounds, the feed it eats gets processed into a higher ratio of fat rather than meat. The hog is still growing, but more of the feed gets turned into fat. If you like lard, that's not such a bad thing.

Easier than chickens

Once the pigs are safely ensconced in their pen, there's not much to do but feed and water them once a day. Make sure they have a wallow, a place with some wet ground so they can roll around in it and keep cool. Ask your vet for recommendations on worming for your area. Other than that, the pigs will do the rest.

The pigs will, of course, destroy the ground in the pen. They will root along the fence too. If the barbed wire isn't enough of a deterrent to keep them from rooting under the fence, you will need to "ring" the pigs (inserting a nose ring to prevent the pigs from rooting). Ring kits are available at most farm stores and not a big deal to use if you have a good helper.

If you want to track their growth, there's a fairly accurate method that will tell you their estimated weight. Start by measuring the heart girth and

length in inches. Measure the heart girth (around the pig, just behind the front legs). Then measure the length from between the ears, down the spine, to the base of the tail. Multiply heart girth by heart girth by length. Divide by 400. The result is the estimated weight in pounds.

If you do handle your pigs, you should know that no matter how well you wash, the smell remains. Peroxide, vinegar, and lemon juice can mitigate the smell. Even so, you might want to keep some distance from others if you go out in public right away. Yes, it really is that hard to get rid of.

Moving pigs

Ideally, our pigs get moved twice in their lives — first to come to our farm, second to go to the butcher. When they're little, a large dog crate works well. Once home, we can lift them off the truck and put them in the pen. A pig doesn't have handles. Nothing on a pig is easy to hang on to, especially when it gets bigger. You can expect 240-decibel screaming throughout the entire moving process.

Getting them to the butcher is a whole other story. A 240-pound pig goes wherever it wants to, and if you're in the way, you're going for a ride.

If the weather is good and I hold my mouth just right, we can back the truck and trailer right up to the pen, and it's a simple thing. Add a little rain and a little mud, and it's a 100-foot trek up a slight hill to get to the trailer, which has to stay in the driveway ... with no fence along the way to help.

We make a two-sided chute of gates, secured to the trailer and spread open. Ideally, our chute is designed so the hogs can't see out very well. Hogs won't try to go somewhere if they can't see something they want to go to. That's sort of true.

There's a third gate at the end, ready to close the hogs in. And there's

a pan of feed and water in the chute. We make sure that the gates won't interfere with a speedy closing of the trailer door once the hogs are in.

We plan on two hours. We pray and then open the hog gate. Usually they walk out slowly, nose to the ground, trenching as they go, looking for things to eat. Often, one person will carry a bucket of slops in front of the hogs while another person follows, tapping them (using a riding crop or a cane) on one shoulder or the other to turn them. They'll make a zigzagging path toward the trailer.

Once you get them in the chute, don't push them much. A temporary chute is usually not foolproof, and if they get desperate, they'll run through it. If you are patient and have goodies in the trailer, they'll spend some time examining it. Once they are confident

that it's safe, they'll go in on their own.

If one pig bolts, it turns into a circus. At that point, there isn't much to be done except to follow the hogs, turning them when you can, keeping them moving until they get tired and thirsty. If there's no water to drink except at the trailer, you'll be able to drive them there eventually.

By the time you get them loaded, any remorse you may have had about sending them to the butcher will have dissolved.

You did it! Now you'll have a freezer full of pork — and maybe one to sell to pay your processing fee. It won't be long before you'll move on to more hard-core farm addictions. The good news? Cows are *much* easier to load. Δ



Feeding time can get a little chaotic.

Bringing back the prairie

By Jeffrey Miller

There are few places as beautiful as the prairie. Though mountains, forests, and beaches get more love in calendars and on social media, a prairie is as dynamic and biodiversity rich as any place on Earth.



*Yellow swallowtail
on a wild bergamot*

As a child growing up in the 1990s, I was taught about how terrible deforestation in the Amazon rainforest was. While that was indeed an environmental disaster, it was not until years later that I learned about another terrible environmental disaster, this one in my own backyard. The tallgrass prairie, which once covered much of the Midwest, exists in less than one percent of its original range.

It wasn't until college that I was fortunate enough to visit a tallgrass prairie remnant. The Sheyenne National Grasslands, located in southeastern North Dakota, have some original tallgrass prairie. It's not pristine, as there are plenty of invasive plants like leafy spurge, but it gives an idea of what the land looked like before settlement.

Today, there are many federal, state, and local agencies, along with non-profits and other interested organizations, that are implementing prairie restoration projects. In my work at a Soil Conservation District, as well as a small landowner, I've learned a lot about the difficulties and triumphs of prairie restoration.

Programs like the Conservation Reserve Program (CRP), along with other state and federal programs, may offer cost-sharing dollars to implement native prairie restoration on private land. Before beginning any project, check with your local office to see what is available.

Prairie ecotones

The most important part of grassland restoration is the ecotone, a



The author's restored prairie, a work in progress



Native prairie does a wonderful job of reducing soil erosion in the winter, as well as providing wildlife habitat.

place where different ecosystems overlap. There are three distinctive types of grassland zones in the United States: tallgrass, mixed-grass, and shortgrass.

The tallgrass prairie, extending from Illinois in the east, to the eastern parts of North Dakota, South Dakota, Nebraska, Kansas, and Oklahoma, is characterized by grass exceeding six feet tall. There is not quite enough precipitation for widespread forests, but enough to grow tall, lush grass and forbs.

The mixed-grass prairie can be found in some parts of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and Texas. It is actually the richest in botanical diversity of the three, with species found in all three ecotones occurring. There is less rain than to the east, but enough rain to allow for a wide diversity of

plants. Plant heights range from ankle height to waist-high, with occasionally taller grass in moister areas.

Finally, we have the shortgrass prairie. It's located in the shadow of the mountains further west. The rain shadow effect makes for scanty moisture, and the native plants are masters at making the most of the rain they get. The Dust Bowl of the 1930s was the most devastating on the shortgrass prairie. It is believed that an El Niño weather pattern provided above average moisture during the 1920s, lulling farmers into the belief that the land was quite fertile. Technological advances in farming equipment allowed them to turn more and more soil over for crops, and when the weather pattern shifted to a drier pattern there was little vegetation to protect the soil.

The site

Land that is not highly productive to agriculture is a great place for a farmer to plant native prairie. The perennial plants will help reduce soil erosion and runoff, as well as provide a habitat for pollinating insects that are needed for crops.

Ranchers' livestock will benefit when they are raised on native prairie plants, rather than introduced species. A healthy, diverse stand of species promotes healthy livestock.

When selecting seed mixes for a site, it makes little sense to include species that are not native to the area. A visit to the local Soil and Water Conservation District (SWCD) or Natural Resources Conservation Service (NRCS) office can help a landowner determine the ecotone the land is located in as well as the



Controlled burn in progress



Controlled burn completed

soil type. The free online tool Web Soil Survey is full of information and available on the NRCS website (nrcs.usda.gov).

Land preparation

The time-tested method for land preparation has been tillage, whether with a tiller, cultivator, or disk. It also helps provide a wonderful seedbed for weeds. Nature abhors empty space, and weeds are quick to populate cultivated soil. Multiple tillage passes should be done, over a full growing season, to keep the weeds controlled. The downside to this tech-

nique is increased wind erosion on the bare ground. Planting a multi-species cover crop prevents erosion and reduces weeds.

Another option is herbicide application. Though I prefer not to use chemicals on my land, there is no doubt that herbicides do a great job of burning down vegetation and getting it ready for seeding.

A few years ago, we began working closely with the United Prairie Foundation (UPF) based in Sheldon, North Dakota. The founder, John DeVries, had devised a strategy that

provides the best land preparation that I've seen.

He starts by using an herbicide in the spring to kill any existing vegetation. On many sites, non-native grasses such as Kentucky bluegrass and smooth brome dominate. They grow quickly and out-compete any native plants that exist. After they are knocked back by the herbicide, John will no-till soybeans into the ground. Using varieties with herbicide resistance, the soybeans will provide a thick cover of vegetation. Come fall, the soybeans can either be harvested or left standing for wildlife. Once the growing season is over, the native seed mix can be drilled into the stubble and is ready to germinate in the spring.

For those that don't wish to use herbicide, fire is another option. Of course, this needs to be done in a safe manner. I always recommend a landowner contact their local fire department for a prescribed burn and not try it on their own. Fire, applied as the grass starts to green up, can effectively kill a large portion of the existing vegetation.

Seed mixes

Native prairie seed mixes — mixtures of grass and forb species — are expensive. They're difficult to grow and there are few places that specialize in raising them. It's no surprise to see that some of the hard-to-grow species cost hundreds of dollars a pound!

Fortunately, there are many programs, both on the national and local level, that can help cost-share the seed. Again, reach out to your local offices for more information.

When it comes to seed mixes, the more diverse, the better. The main component of any mix will be grass species. In a native prairie, grass species dominate, with forbs filling in ecological niches. For example, tallgrass mixes almost always have the "Big Four" species as the foundation. Big Bluestem, Little Bluestem, Indiangrass, and Switchgrass form a

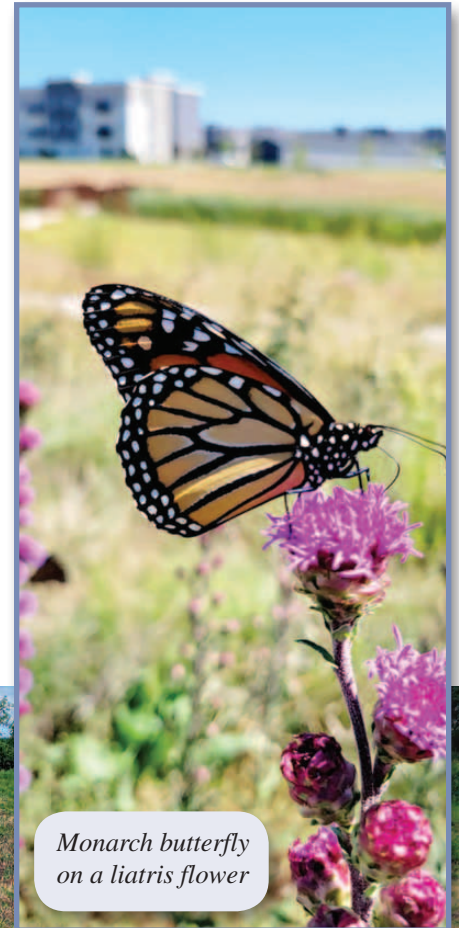
strong base for the rest of the grass and forb species to extend from. A high diversity of forbs can be added to the mix, like Black-eyed Susans, coneflowers, milkweeds, prairie clovers, and wild bergamot. As a large percentage of the mix, though, the grass species will dominate. Resist the urge to only plant a few species. Monocultures don't occur in nature.

There are classic species in each ecotone that should always be included. Mixed-grass prairie sites should always have little bluestem, side oats grama, blue grama, and western wheatgrass, while short grass species include buffalograss, blue grama, and needle and thread grass.

A mix can get creative when it comes to forbs. There are hundreds of forb species that are native to grasslands, and each one has its place. I always recommend studying the species' characteristics to decide what a landowner wants to see.

An important consideration is the bloom period. Pollinating insects need a constant food source during the growing season, with different

species blooming at different times. For instance, in tallgrass prairie mixes, Prairie Phlox and Golden Alexanders are great spring bloomers, Swamp Milkweed and Black-eyed Susans are terrific summer bloomers, and the various goldenrods and asters are very good fall bloomers.



*Monarch butterfly
on a liatris flower*

I sprayed the weeds with herbicide and planted soybeans.

Color is important to some, while others simply want a rich biodiversity. With forbs the sky is the limit, and it's important to determine a budget before a project gets financially out of hand.



Sky Blue Aster

Once a seed mix is decided upon, make sure the seed is a local ecotype. Just because it's a Big Bluestem doesn't mean it will grow. For instance, seed harvested from Big Bluestem grown in southern Illinois will do poorly in eastern North Dakota. Seed vendors have seed source information, and make sure to study it before purchasing. The closer the seed grows to the project, the better it will do.

Planting

Seed can be planted using either a drill or by broadcasting. My experience, based on years of native prairie restoration, is that a no-till cannot be beat for ease of planting and germination success. A drill places each seed at the appropriate depth and distance. Unfortunately, even small no-till drills are expensive and require a decent-sized tractor to operate. Fortunately, many SWCD offices offer seeding services or drill rentals.

When using a drill, study the seed rate and calibration technique. As the seed is very expensive, it can be dis-

heartening to be halfway done planting and realize the seed is gone! It's not a good feeling.

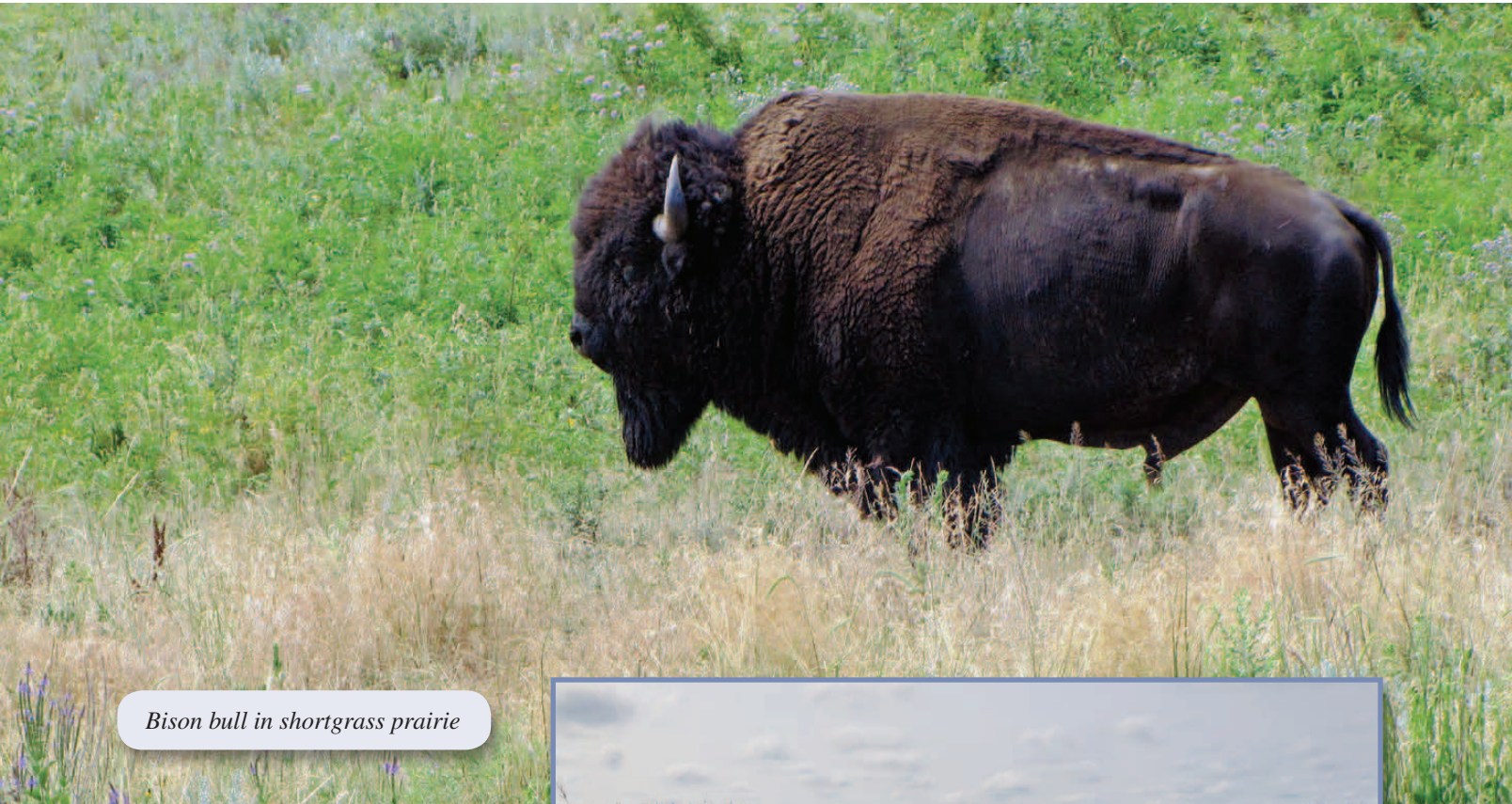
If a drill isn't available, the seed can be broadcast. For small sites, a handheld or pushed broadcaster works fine. However, when using the broadcast method, the seeding rate needs to be doubled. I also like to include oats as a nurse crop, both when broadcasting or drilling. The oats grow quickly and provide shade to the small grass seedlings.

Timing broadcast seeding just before rain ensures good seed-to-soil contact, as the rain will naturally incorporate the seed. Using a rake or harrow after seeding also helps the seed contact the soil better for germination.

If the planting is being cost-shared by the NRCS, there are rules to be followed regarding the timing of seeding. In my area of North Dakota, for instance, warm season grass needs to be planted in May and no later than June 15th. Cool season mixes can be seeded earlier or during a late summer seeding window, from August to early September. They can



Soybeans before the first frost

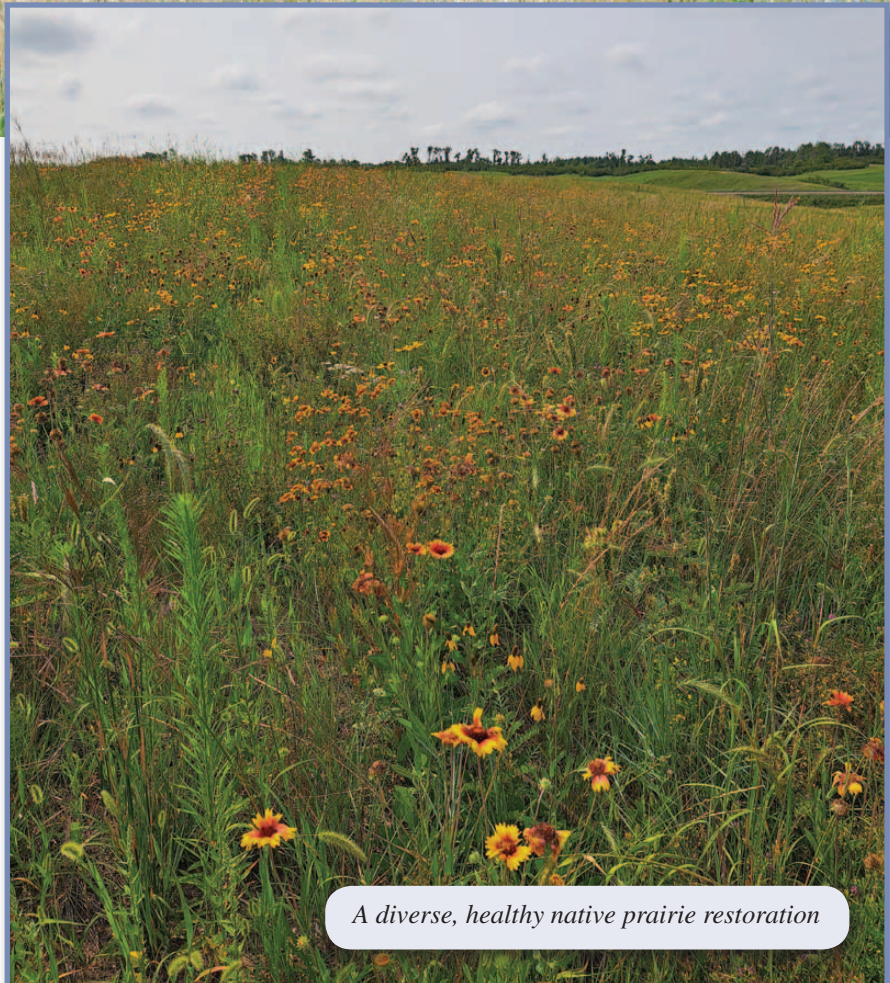


Bison bull in shortgrass prairie

also be seeded during the dormant window, which is once the soil temperature drops below 45 F and germination won't occur.

The United Prairie Foundation's method of dormant seeding a diverse mix, either drilling just before snowfall or actually broadcasting on the existing snowpack before spring melt, has worked great for me. Many forb species require cold wet stratification, a freeze-thaw process. By getting the seed in the ground just before it freezes, the natural processes of freezing and thawing ensure the seed is ready to grow as soon as the conditions are optimal in the spring.

Waiting until the soil is dry enough in the spring to seed can be difficult, as sometimes that doesn't occur until June. However, if there are stipulations on seeding dates for a cost-share program, they must be followed to ensure payment.



A diverse, healthy native prairie restoration



Seeding with a no-till drill during late fall

Weeds

There is no way around it, there will be weeds. I start off every discussion with a prospective customer about the weed issue. They assure me they understand, and it won't be a problem. My phone then rings mid-summer, and I'm asked what they can spray with to get rid of the weeds!

Weeds are simply plants in places they aren't wanted. Though many have been introduced from other lands, some are native as well. Weeds make their living by quickly growing and producing seed. The native grasses and forbs are slow to germinate and grow, and the fast-growing weeds will quickly take over.

This is normal and expected. The cycle of growing is often described as, "sleep, creep, and leap." The first year the seed germinates and works on growing the root system. The second year, aboveground growth is evident, though it's mostly short. The third year, the plants expand drastically, in both the root system and aboveground growth.

It's important to remember that wildlife benefits from all plants, including weeds. Though the various invasive thistles seem to be nearly impossible to control, the flowers and seeds are very attractive to many dif-

ferent insects and bird species. Prairie restoration is not perfect, and even the imperfections have their place. A weedy field is infinitely better for wildlife than a tilled black field or turfgrass expanse.

Management

During the first year, it's helpful to clip the planting once or even twice, if the weeds are thick. I set my zero-turn lawnmower at its high setting and mow when the weeds start to flower. A rough cut three-point mower on a tractor works even better. Make sure, however, not to cut as low as you would a lawn. The growing points are low on native grasses and forbs, but cutting too low will cause unneeded stress to the plants.

During the second year, as soon as some of the grass starts greening up, a prescribed burn does wonders to reduce the duff left from weeds as well as knocking back invasive grasses like smooth brome. Prairie evolved with fire, both from natural sources like lightning as well as Indigenous peoples setting fire to attract game.

Fire is incredibly dangerous, however. Each year, prescribed fires get out of control and damage property and homes. Local fire departments are almost always looking for training

opportunities, and a prescribed fire is an excellent way for them to gain experience in a controlled setting.

Prairie also evolved with grazing. I was fortunate enough to have the opportunity to bowhunt for bison on the Lower Brule Indian Reservation in central South Dakota a few years ago. The Tribe has done a wonderful job in restoring thousands of acres to native prairies, utilizing both fire and grazing to accomplish their goals.

Cattle and sheep can also be used to control weeds and restore vigor to a prairie ecosystem. Extreme care must be taken, however, to prevent overgrazing. Domestic livestock will find certain "ice cream" plants, like Big Bluestem and Leadplant, and seek them out. Once the native plants are grazed down, non-native invasives can get a foothold. Overgrazing not only causes poor land conditions but also results in lower yields for livestock, so smart ranchers will make sure to have a healthy grazing rotation.

The prairie flourishes

Each year, a restored prairie will be different. A diverse seed mix ensures that there are species that will thrive no matter what the conditions. A dry year will have much different forb growth than a wet year. Some species, like Black-eyed Susan, are everywhere in the beginning but slowly disappear as time goes by. Others, like Purple Coneflower and Goldenrod species, start out slowly but will increase in number as the planting gets older. It's always exciting to see the different plant expression each year.

Though we will never see prairie stretching to the horizon in the Midwest again, there are places where it will thrive. Forward thinking landowners and homesteaders willing to do some work on the front end can marvel at the native prairie, arising like a phoenix from the tamed soil. Δ



Backwoods Coloring Page

Art by Wren Everett

At the Spring Dawn

I watched the dawn come,
 Watched the spring dawn come.
And the red sun shouldered his way up
 Through the grey, through the blue,
Through the lilac mists.
The quiet of it! The goodness of it!
 And one bird awoke, sang, whirred
A blur of moving black against the sun,
 Sang again—afar off.
And I stretched my arms to the redness of the sun,
 Stretched to my finger tips,
 And I laughed.
Ah! It is good to be alive, good to love,
At the dawn,
 At the spring dawn.

Angelina Weld Grimké



The Garden Guard

He stands outside in rain or shine,
In tattered clothes that once were mine.
The seasons all around him flow,
From summer sun to winter snow.
A lonely guard who's duty bound,
To watch and wait the whole year 'round.
But when the garden starts to grow,
The job begins for old scarecrow.

Tom R. Kovach

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Much More



Kids' corner

By Kathryn Clover

Humans have been dyeing fabrics to wear for thousands of years. For most of our history, we used plants and even animals as dyes (like squished cochineal bugs for bright red!).

Many clothes today are dyed with chemical dyes using acids and bleaches. Chemical dyes are bright and last a long time, but they are not good for the environment. Even some of the mordants (substances that are added to natural dyes to make

them stick to fabric) are poisonous. They can make plants, animals, and humans very sick.

I dyed fabrics using chemicals at university. One year I helped make a community garden. The soil had been poisoned by a dye for leather. Nothing would grow except in raised beds. I decided to use natural dyes and safe mordants from that day on.

We can still make lovely coloured eggs using non-toxic vegetable colours and edible mordants. Let's get busy and dye some eggs.

Top tip: Use white eggs for bright colours and brown eggs for darker colours!

Make your own nature-dyed eggs

What you will need:

- 4 hard-boiled eggs
- Small saucepan
- Slotted spoon
- Cooker or stove (Ask an adult to help if needed.)
- Vinegar
- Cooking oil

Try these dyes:

- Red cabbage, chopped
- Brown or red onion outer skins
- Beetroot, chopped
- Turmeric powder
- Coffee granules

Heat up your chosen vegetables or spice in water on the stove. Stir and watch until the water changes colour. You now have dye. You can store it in a jam jar once cooled.

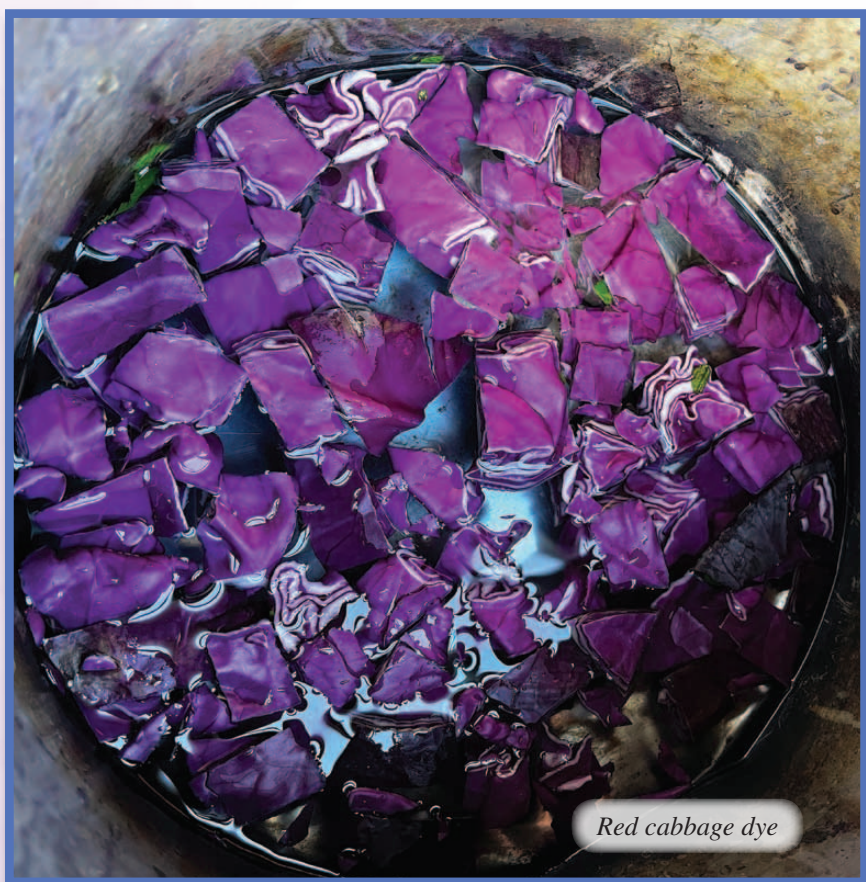
I make green by mixing turmeric (yellow) with red cabbage (blue). Yes, red cabbage dyes eggs an amazing bright blue! Try adding baking soda to change the colour of your red cabbage dye.

All-over dyed egg

This is the simplest type of dyed egg.

1. Choose a vegetable to dye with. If it needs chopping, chop it into small pieces.
2. Stick pieces of vegetable, spoons of spice, or onion skins into a pan with 2 cups of water.
3. Heat the vegetable water on low heat for 10 minutes, stirring it. (Ask an adult to help if needed.) You should be able to see the dye colouring the water.
4. Add 2 Tbsp. vinegar and stir.
5. If you like tidiness, scoop out the used vegetables with a slotted spoon.

Watercolor: Adobe Stock / jenteva





Woolly egg (far left), leaf print egg (middle), and all-over dyed eggs

If not, just put your egg in using the slotted spoon.

6. Allow your egg to sit in the dye for at least one hour. Overnight is better.

7. Scoop out and witness the magic! Dry, then rub with edible oil for a shiny dyed egg.

Crazy paving coffee egg

This one is really fun. You get to crack your egg! I use a white egg. I love the crazy paving pattern. Make sure it is hard-boiled, or you will make an eggy mess! Don't put vinegar in for this one.

1. Put 3 Tbsp. coffee granules into 2 cups of water in a small pan.

2. Heat water on a low heat. Keep stirring until all the coffee dissolves.

3. Gently tap your egg on a table all over its surface. Keep tapping until tiny cracks run all around the egg-shell. (This can be tricky. Keep some eggs spare in case it falls apart.)

4. Lower your egg into the coffee and leave it to cool for at least 20 minutes.

5. Use the slotted spoon to get your crazy paving egg out. Allow to dry.

Petal leaf print egg

Collect small, flat flowers and small leaves you find pretty. You can use an egg you've dyed before with a light colour for a truly amazing effect. Use a darker colour to dye around the leaves and petals.

Make bands or cross shapes by sticking masking tape over the bits of egg you want to stay the same colour.

1. Dye a white egg in a bright, light colour like green (turmeric and red cabbage).

2. Dry the egg, but don't oil it.

3. Using just a tiny bit of edible oil, dip your small leaves (I used hawthorn leaves) in the oil. Stick them on your egg.

4. Roll up the leg of some cheap, thin tights and stretch them over your leafy, flowery egg. Tie tightly with



Crazy paving coffee egg

a rubber band. This stops the plants from coming off in the dye.

5. Pop your egg in a dark colour dye bath and leave for one hour or overnight.

6. Remove the egg from the bath, take it out of the tights, and pick off the leaves, flowers, and any tape. Voilà!

Woolly rainbow egg

This egg is great for using up old dye you used to dye other eggs. Use two or more colours.

1. Choose any colour of hard-boiled egg. It doesn't matter because you're going to cover it in wool.

2. Dip strings of plain wool in two or more of your dyes. Wait five minutes, then pull them out and put them on a piece of paper towel.

3. Once they are dry enough not to drip, dip them in glue and wrap around your egg. It's easier to start in the middle and work towards the ends. Change colours of wool to make rainbow bands on your egg.

4. Put it on a metal rack or hang in some twigs to dry. Ta-da!

The eggs look great all together in a bowl.

Kathryn Clover is a Foraging and Wildfood Cookery tutor based in the United Kingdom. Find her on hedgewitchadventures.com, read her foraging blog, and check out her Facebook page 'Hedgewitch Adventures' for past and future events. Δ

Country Moments

Submit your photo: countrymoments@backwoodshome.com

There is no payment for Country Moments photos.



Our two boys Samuel and Nathan loving the beauty of the country
Sean Quinn, Lancaster, Pennsylvania



What a good soft place to land
Kim Blanton, Lucasville, Ohio



Big snow of 2026
Sarah M., Richfield, North Carolina



Five-month-old Rosemary in our own pumpkin patch
Stephanie Aldrich, Lake Stevens, Washington



*Me and my turkey named Turkey
Kammi Kirchner, Glen Rock, Pennsylvania*



*Earl and Hodie
Ryan Nuhfer*



*This is my wife Naomi holding our five month old
with Joy on her head. When we go out to feed the chickens,
Joy likes to ride on our shoulders or head.
Brett Jimison, Fredericksburg, Texas*



*My granddaughter with one of my baby goats
Eunice Mushitz, Riverton, Wyoming*



*Lance and Beckett help to harvest our potatoes.
Amandalin Hitt, Spirit Lake, Idaho*



*Our daughters Paisley and Rylee — The picture was taken
on our farm and it really captures a special little piece of our life.
Kaitlin Brandon, Burlington, North Carolina*



*We had to take the picture quickly while all six kids were still!
Renee Parsley, Fairbanks, Alaska*



*Atlas is helping to pick corn on a rainy day.
Caleb Wuest, Upper Wisconsin*



*Three beauties: One in a spring dress
and the other two getting a loving squeeze
Jane Ann Skinner, Hillsboro, Missouri*



*Early sunrise over the Klamath River
Ron Dobry, Keno, Oregon*



*Jersey calf Dahlia meeting Hazel for the first time
Sarah Switzer, Creston, California*



*Raising up the next generation of horse girls
Rebecca Brown, Washington*

the **gee-whiz!** page

By O.E. MacDougal

A list of facts and trivia you probably didn't learn in school

Your brain makes up about 2 percent of your body's mass, but it consumes about 20 percent of all your calories. That's about 400 to 500 calories a day. Also, you burn more calories when you think harder.

~~~~~

Joe Biden was born closer to the presidency of Abraham Lincoln (77 years before Biden was born) than he was to the start of his own presidency (79 years after he was born).

~~~~~

In the state of Idaho, and only Idaho, cannibalism is explicitly illegal. There are no specific laws against it in the other 49 states.

~~~~~

"Vegetable" is not a botanical term. "Fruit," on the other hand, is. Vegetable is a culinary term that describes the edible part of a plant that is used in savory dishes, whereas a fruit is the seed-bearing part of any plant that develops from a flower and is directly involved in the plant's reproduction. However, in cooking, some fruits, such as tomatoes, cucumbers, and peppers are called vegetables because they're used in savory dishes.

By the way, peppers, whether hot peppers or bell peppers, are technically berries.

~~~~~

Jack Daniel's whiskey is made at their distillery in Lynchburg, Tennessee, which is a part of Moore County. However, you cannot buy or drink their whiskey in Lynchburg



Adobe Stock / Denny

Once they have their scent glands removed, skunks are one of the few wild mammals that make good pets. However, that scent gland is their only defense, so once you've removed it, they can never be let out in the wild again.

nor in any other city or town in the county because Moore County is a "dry" county, meaning you cannot buy or consume drinking alcohol within its borders.

~~~~~

According to the United States Department of Transportation Highway Administration, the most common type of automobile accident in the United States is a rear-end collision.

However, you are more likely to be injured in a red light accident (where someone runs a red light) than in any other type of crash. So, keep your head on a swivel even if you're driving through a green light.

~~~~~

The lowest temperature ever recorded in the United States was minus 80 F, in Prospect Creek Camp, Alaska,

January 23, 1971. The highest temperature ever recorded in the United States was 134.4 F, in Death Valley, California, July 10, 1913. That is a difference of 214.4 F. By the way, no one lives in Prospect Creek Camp anymore.

~~~~~

If you Google the word askew and hit enter, the page that comes up will be tilted slightly clockwise.

But if you google zerg rush and choose the first search result, hoards of critters that each look like a lowercase "o" will start pouring down the page eating all the text.

~~~~~

Seventy-five percent of all the world's known tornadoes happen in the United States. We also have more trailer parks than any other country.

Coincidence?


~~~~~  
Collectively, Mexico's drug cartels are Mexico's fifth largest employer employing more than 175,000 people.

One of the four larger employers is Walmart México y Centroamérica, which is Walmart's largest division outside of the United States.

~~~~~  
Packs of wolves and flocks of ravens often develop relationships in the wild. The ravens use identifiable calls to alert the wolves to the presence of prey and, after the wolves make the kill, they allow the ravens to come to the dinner table. The wolves will even shred parts of the kill to make it easier for the ravens to eat the meat.

Because coyotes compete with wolves, ravens also alert the wolves to their presence and lead the chase, acting the way helicopters in the air do for law enforcement in police pursuits, not letting the coyotes escape when they get out of sight of the wolf pack on the ground.

Ravens have not only been seen playing with wolf pups, but individual ravens and individual wolves often become best friends.

P.S. A group of ravens can be called an unkindness, a rave, a conspiracy, or a flock.

~~~~~  
Worldwide, there are more people suffering from obesity (1.3 billion) than from hunger (900 million). Also, since the early 2010s, more people in the world are dying from the deleterious health effects of obesity (among them, heart disease, stroke, type 2 diabetes, non-alcoholic fatty liver disease, and several types of cancer including breast, colon, and endometrial cancer) than from malnutrition and starvation.

~~~~~  
The hottest temperature yet recorded happened here, on Earth, in 2012, at the Brookhaven National Laboratory in Upton, New York. It



Adobe Stock / creativemurad

Wolves and ravens can form long-lasting relationships that benefit both species, and individual wolves and ravens can become best friends.

~~~~~  
was 7.2 trillion degrees Fahrenheit. That's a quarter of a million times hotter than the temperature at the core of the sun.

~~~~~  
Los Angeles County, population 9.7 million, has more people than 40 of the states in the United States. More people than Alaska, Delaware, Maine, Montana, New Hampshire, North Dakota, Rhode Island, South Dakota, Vermont, and Wyoming *combined*.

~~~~~  
In 1985, lifeguards in New Orleans, Louisiana held an end-of-year pool party to celebrate a year with no drownings. Roughly half of the 200 guests were lifeguards, and four lifeguards were also on duty at the pool. When the party was over, the four lifeguards on duty were doing the cleanup when they discovered the fully-clothed body of one of the guests, Jerome Moody, 31. He was dead at the deep end of the pool. An autopsy showed he was the victim of a drowning. Until that point, 1985 had been the first year since they'd started holding their parties that they hadn't had a drowning at any of their pools. Bummer!

We are born with approximately 300 bones in our bodies, but because many of them fuse to make one bone (such as the two frontal bones, two parietal bones, and one occipital bone in a baby's head that fuse into one bone we call the skull) by the time we're adults we only have 206.

Of those 206 bones, over half are in our hands and feet (27 in each hand and 26 in each foot).

The largest bone in the human body is the femur and barring amputation, you've got two of those, one in each thigh.

The smallest bones you've got are the three tiny bones in each of your ears. These tiny bones are the reason you can hear.

~~~~~  
There are at least 1 million and some say more than 5 million pet skunks in the United States. Though they are "wild," once descended, they make smart and lovable pets.

~~~~~  
Paleontologists have determined that if a human and a Tyrannosaurus rex had a footrace, the human would most likely win. This, they've discovered, is because all the Tyrannosaurus rexes are dead. Δ



# Hawaiian Poha berries

By Lisa Nourse

**W**e enjoy trying new things in the garden. Whether it's a vegetable, fruit, or berry, trying something new keeps things interesting and you never know when you might come up with a new favorite. This last year our new thing to try was the Hawaiian Poha berry. We bought just one plant because we had read that they are easily cultivated by cuttings. Thus, if we liked the berries, we could clone the plant to make more. If we didn't like the berries, we had not put out a lot of money to buy multiple plants. And since the Poha berry is self-pollinating, it was not necessary to have more than one plant to produce fruit.

The Hawaiian Poha berry (*Physalis peruviana*), also known as the Cape gooseberry or Golden berry, among many other names, belongs to the Solanaceae (nightshade) family that also includes potatoes, tomatoes, peppers, eggplants, and — the plant they most resemble — tomatillos. Poha berries are closely related to ground cherries (*Physalis pruinosa*) with many people believing they are the same plant. This may be because the Hawaiian Poha berry is often also called the Peruvian groundcherry. However, ground cherries grow in a sprawling manner close to the ground, while Poha berries have a more upright growth manner. Both have berries that grow in a ribbed husk, but ground cherries have a 5-ribbed husk, while Poha berries have a 10-ribbed husk with a larger berry. Poha berries have a similar taste to ground cherries, but are a little more tart with a



*Poha berries do not all ripen at the same time. In this photo you can see the riper berries near the bottom of the plant, while up a little higher (on the same stem) the berries are still green.*





more tropical flavor, often likened to a citrusy pineapple/strawberry mix.

Being a more tropical plant, native to South America (where it is considered invasive in some areas), we were not sure we could grow a Poha berry here in our Pacific Northwest maritime climate. But since we live inland from the ocean by about four miles and are in a little pocket of land surrounded by small hills on three sides (great wind blocks), we decided to give it a try. Because the plant is easily cloned, we thought if the main plant died over the winter, we could just clone it every fall and keep the clones under a light in a warm place for the winter. In this way, we could treat the plant as an annual and replant the clones every spring.

Hawaiian Poha berries can also be grown from seed. However, we learned that seed companies often mislabel the seeds, so what you might get is ground cherry seeds. We did not want to take the chance of buying seeds only to find out after the work of growing them that we did not have the plants we wanted. So we ordered a live plant from Sow Exotic (sowexotic.com). This company has a variety of exotic and unusual plants, and their customer service is great. We will definitely be ordering from them again. We did save seeds from some of our harvest this year and will try growing Poha berry plants from seed next year.

*Lots of lantern shapes means lots of berries later on.*

## Growing Poha berries

Poha berries should be planted in well-drained soil. They do not require fertilizer at the time of planting as this will promote leaf growth and reduced fruiting. We have not fertilized ours at all and it has done just fine. If you want to fertilize, just be sure to use a low-nitrogen fertilizer. They *do* need to be watered regularly as they can go dormant in drought-like conditions. Although they are an upright plant, Poha berries still sprawl a bit so you might consider

giving them some support if you live in an area that gets windy. Depending on the cultivar, Poha berry plants can get 4-5 feet tall and sprawl out 6-7 feet wide.

When taking cuttings in order to clone the plant, look at the nodes. Like tomatoes, Poha berries will sometimes form rootlets at some of the nodes. These rootlets will give you a better chance of the clone being successful.

Cut the shoot diagonally just below the node. Take several cuttings as



*Hawaiian Poha berries grow upright, but do like to spread out a bit.*





*The Poha berries' flowers are dainty and bell shaped. I happened to catch a pollinator on the flower in the left photo.*

some of them may not be successful. You can dip the cutting in rooting hormone if you wish, then stick it in a pot (about halfway) with a good organic potting soil that has sand or perlite added to improve drainage.

Place the clones in a sheltered location and keep the soil moist, but not soggy.

When the weather starts to turn cold, bring the new starts indoors where they will not freeze. Transplant out-

side the following spring once the weather warms a bit.

You can also dig up the entire Poha plant and pot it to overwinter indoors. Trim all the foliage, just leaving the crown of the plant.

### Harvesting

In our area, the berries begin ripening from late August to early September. This may differ in a warmer climate than what we have.

The fruit of the Poha berry is ripe when it turns a golden yellowish-orange color. As the berry ripens, the husk will turn a straw-brown color and will become thinner. You will be able to see the color of the berry through the translucent husk. Poha berries will not continue to ripen once picked, so make sure they are ripe before harvesting. It is best to harvest the berries later in the day after the dew is dry. The fruit of the



*This is one of our clones from this year. In the photo on the right, you can see that it is already beginning to put out side shoots. The clones will spend the winter in an outbuilding under grow lights, kept warm by an oil heater on the lowest setting along with our other tropical plants.*





### Saving seeds

To save seeds from Poha berries, make sure to let a few stay on the plant to get really ripe.

Remove the husk and squeeze the berry to pop it open. Then squish the seeds out into a small bowl or cup.

Add a little water and swish the seeds around to rinse them and clean off the pulp. Dump the seeds into a small strainer to drain them.

Spread them out onto a paper plate to dry.

*Beginning to ripen — there is a subtle difference between ripe and not quite ripe. In the inset photo the berry on the left is the ripe one.*



*Chocolate dipped Poha berries and strawberries along with sliced kiwi makes a simple, tropical dessert plate.*

Poha berry will keep for quite some time at room temperature (30 days or longer) as long as they are picked when dry, left in the husk, and stored in a single layer.

Like some other nightshade plants, the unripe berries, flowers, and leaves of the Poha berry contain solanine that might cause poisoning if eaten in quantity by you or your livestock. So only eat the ripe berries of this plant.

### How to use Poha berries

Poha berries are tasty whether eaten raw or cooked, and do equally well in sweet or savory recipes.

While they are great just as a bite-sized snack while working in the garden, there are a few other culinary uses for the Poha berries. They make a great tart-sweet jam, you can use them to make a sauce to top desserts such as cheesecake or ice cream, and

they can also be used in fruit salads, smoothies, or to top your morning oatmeal or yogurt. A very quick and easy dessert is to simply dip the Poha berries in melted chocolate as you would strawberries, leaving the husk on to use as a handle. Poha berries have a wax-like coating, so before dipping them in melted chocolate, wipe the waxy coating off with a paper towel, otherwise the chocolate will slide right off. Poha berries also make great salsa or chutney.

### Chunky Poha berry salsa:

1 medium tomato, diced fine  
½ of a small red onion, diced fine  
1 small jalapeño, deseeded and diced fine (optional, or you can use a sweet pepper instead)  
A few leaves of cilantro, chopped  
½ cup quartered Poha berries  
1 Tbsp. lemon juice  
½ tsp. paprika  
½ tsp. salt  
1 tsp. sugar (optional)





*Chunky Poha berry salsa with chips*

Mix all ingredients, except sugar. Taste, and if it tastes a little too acidic, add the sugar. Refrigerate for a few hours, then serve with chips, tacos, grilled chicken, or fish.

**Lemon Poha berry scones:**

I like scones, and I like lemon. To put the Poha berries together with lemon in a scone recipe just seemed natural.

2 cups all-purpose flour or a gluten-free blend  
1/3 cup sugar  
1 Tbsp. baking powder  
1/2 tsp. salt  
1-1 1/2 Tbsp. lemon zest (Use the larger amount if you like lots of lemon flavor.)  
6 Tbsp. cold, unsalted butter  
1/2 cup plus 2 Tbsp. heavy whipping cream, divided (You can use coconut milk for a more tropical flavor.)  
1 egg at room temperature  
1 tsp. vanilla extract  
1/2 cup Poha berries, chopped

**Lemon glaze:**

1 cup powdered sugar  
2-3 Tbsp. lemon juice  
1 tsp. lemon zest (optional)

Preheat the oven to 400 F. Line a baking sheet with culinary parchment paper.

Mix the flour, sugar, baking powder, salt, and lemon zest together in a large bowl. Grate the cold butter over the flour mixture and stir together with a fork.

In a small bowl, whisk the 1/2 cup heavy whipping cream, egg, and vanilla extract together. Pour over the

flour mixture. Stir until it starts to come together as a dough. It will be very dry, but don't worry. When you put the Poha berries in, it will come together.

Dump the dough onto a lightly floured surface. Lightly flour your hands and start working the dough into a ball. Add the Poha berries as the dough starts to come together. Work it a little more, then form into an 8-inch circle and cut into eight wedges.

Brush the scones with the remaining 2 Tbsp. of heavy whipping cream (you may not need all of it).

Arrange the scones 2-3 inches apart on the parchment-lined baking sheet and pop them in the oven on the middle rack.

Bake for 20-25 minutes or until golden brown around the edges and lightly browned on top. Remove from the oven and cool for 5-10 minutes before glazing and serving.

To make the lemon glaze: Put all ingredients in a bowl and beat on high with an electric mixer or whisk until smooth.

Give Poha berries a try! I'm sure you will like them just as much as we do. Δ



*Lemon Poha berry scones — since I use a gluten-free flour blend, the scones don't rise as well as they would with all-purpose flour.*



## Lenie in the kitchen: Gisela's Mexican lentil soup

By Ilene Duffy

**M**y son Robby and his girlfriend Gisela are temporarily living with us in order to save up to buy their own home. I enjoy seeing them take over the kitchen while preparing a meal together. Recently, Gisela made a big pot of lentil soup. After my husband Dave and I had some, I asked her to write down the ingredients and the order in which she included them.

This recipe is forgiving since you can change it to suit who will be eating the soup or use what is already on hand in the pantry or fridge. For instance, Gisela used only three carrots, and I wanted to include parsnips, so I used just one carrot and added three parsnips. (I was inspired after reading Jenny Tennant's article in this issue about growing parsnips.) Gisela fried up a few pieces of turkey bacon, but I already had some good quality mini beef hot dogs with jalapeños that were left over from our Superbowl snacks. She used cumin, but I wanted the soup to be more herb flavored, so I used only Italian seasoning along with the garlic flavored bouillon. Gisela loves cilantro and she chopped up a big handful to add, but parsley can be substituted instead, which is what I used.

The main idea with this type of soup is to make sure the ratio of lentils and liquid is approximately the same each time. For this batch as the soup simmered and thickened, I added another half cup of water to make sure it wouldn't stick to the bottom.

When I first thought of trying this recipe, I imagined a good extender for feeding a large family might be to

add a half cup of rice, cooked separately, and added after all the other ingredients are in the pot. Or perhaps a couple of small, peeled potatoes chopped finely would both thicken the soup and add a few more servings.

At any rate, my version came out spicy and delicious. The only ingredients I needed to buy were the jalapeños and parsnips. I used red lentils, but any color you have in your pantry will suffice. I can't wait to try this recipe again using various fresh vegetables and herbs from my garden.

### Gisela's Mexican lentil soup

1 lb. red or brown lentils (I used red.)  
2 Tbsp. olive oil  
1 medium onion, diced small  
1 carrot, sliced thinly  
3 parsnips, peeled and sliced thinly  
3 celery sticks, chopped small  
½ red bell pepper, seeded and chopped small  
4 jalapeños, seeded and minced (Got kids? Omit if you want a non-spicy soup. Instead, you can just add more Italian seasoning or fresh herbs such as oregano and thyme.)  
6 garlic cloves, minced  
4 (14.5-oz.) cans chicken broth  
6 cups water  
2 tsp. garlic powder  
Freshly ground pepper  
1 tsp. Italian seasoning  
1 heaping tsp. Better than Bouillon, garlic flavor  
1 handful fresh parsley, leaves chopped  
¼ lb. beef or chicken sausages, or a few leftover good quality beef hot dogs, or a few pre-cooked slices of turkey bacon, chopped finely (optional)  
Salt to taste

Rinse lentils thoroughly, then add to a bowl and cover with water. Soak them about 20 minutes while chopping and sautéing the vegetables.

In a large frying pan, heat olive oil. Add onion and sauté a few minutes. Add carrot and parsnips and allow them to soften slightly before adding the celery, bell pepper, jalapeños, and garlic. Sauté the vegetables for 5-10 minutes.

In a large soup pot, heat the 4 cans of broth and water, then add the contents of the frying pan. Drain and rinse the lentils and add them to the pot. Add remaining ingredients except salt. Turn down heat to a low simmer. Cover with a lid slightly ajar. Stir occasionally and add a bit more water as necessary so the soup won't stick to the bottom. The soup is done when lentils are very soft. Add salt to taste. Δ



*Here's a tip for all you busy parents: Chop the vegetables in the morning and put them in the fridge. Then at suppertime, this soup will be a snap to get ready.*



# Growing and loving parsnips

By Jenny Tennant

**P**arsnips are easy to grow, and are delicious in stews or soups, roasted or mashed. Don't believe they're tasty? Try boiling them and mashing them with sautéed garlic, cream, salt, and pepper. So good. Adding in a carrot balances the parsnip flavor nicely and gives the dish a nice warm color. Parsnips are good for you too, being high in fiber, antioxidants, vitamin C, folate, potassium, and manganese.

Ideally, parsnips look like white carrots, though in reality they are often oddly shaped. The better the dirt, the more attractive the root. Unfortunately, parsnips like loose, well-draining soil, and I have none of that, situated as I am on a reclaimed strip mine. Keep firmly in mind: An ugly parsnip tastes just as good as a beautiful one. But if you want beautiful parsnips, be sure to work the soil 12-18 inches deep and amend with sand, perlite, or something else to loosen it up. The ideal soil pH is between 6 and 7, which is slightly acidic. Rotted manure is also wonderful for parsnips, and in fact the whole garden.

Now, it may be that I have flawed taste buds, but I can't tell one parsnip type from another. To that end, I'd suggest buying the shape that best fits your soil. Like carrots, to which they're closely related, they come in

short and fat root, or long and tapered root varieties.

Did I follow my own advice? No. Instead, knowing nothing about parsnips, I bought the one that tempted me with its description and pictures: the heirloom Hollow Crown, which is a long and tapered type of parsnip. Not at all what's wanted for heavy soil. Later, I bought Albion parsnips, which are supposed to do well in dense soil. I feel I should give you details on the differences, but I didn't notice any. Both parsnips grew beautifully, and formed nice, fat, oddly shaped roots. I do aim to do better with raised beds, but will keep grow-

ing yummy parsnips even if they sometimes look like gnomes.

There was one year nothing sprouted. Parsnip seeds are only good for one year, but these were new seeds from a very well known company. Should this happen to you, you may think, "Stupid parsnips," but this is not so. It's the seeds. Fresh seeds grow great. Around here, volunteer parsnips keep popping up in the oddest places. This is why I now save my own parsnip seeds.

Parsnips germinate slowly, taking up to four weeks sometimes. This period can be shortened by presoaking the seeds overnight. That did not help during the year of bad seeds.



*Top: Healthy parsnips with a few months to go. I have a bag of perlite I'll dig in this fall, since all the sand I dug in didn't do a very good job.*



*Left: Parsnip seeds ready to harvest*



After the seed failure, and two more attempts, I dumped all the remaining seeds in a short row. By this time, it was August — way too late to get any parsnips since they take about four months to mature. Six plants came up, and I hoped to get early parsnips the following year. (I live in growing zone 7a.) They were about 4 inches tall when the freeze came, then snow, and then they were gone. But in the spring they came back! Surely the short first year wouldn't trigger tough roots and seed production. Well, yes it did, and although I didn't get any early parsnips, I did learn how to use as little garden space as possible to grow parsnip seeds.

Like carrots, parsnips are biennial, meaning they produce seeds in the second year. And, like carrots, the root turns woody in the second year. Because they will produce seeds even with a short first year, a few parsnips for seeds can be planted in mid-summer. Parsnips are self-fertile, but planting three to four parsnips together improves both seed viability and genetic diversity. With parsnips, there's no need for a time of cold (stratification) to ensure germination; as soon as the seeds are dry, they are ready to make baby parsnips. This year, I pulled up the garlic and planted some parsnips for seeds in the old garlic bed.

Plant parsnip seeds in rows 18 inches apart,  $\frac{1}{4}$ - $\frac{1}{2}$  inch deep, and water until the plants are several inches high. The ideal temperature range for parsnip germination is around 65-70 F. The need for warm soil, slow germination, and slow growth means there's really only one shot at growing parsnips each year, so plant the seeds heavily. In the end, if you plant in rows 18 inches apart, the parsnips should be 4 inches apart in each row. This can be obtained by first thinning to 3 inches apart when the plants are 3 inches high, and then further thinning later if needed. If you don't want to plant in rows, but rather in

a grid, plant them 10-12 inches apart in all directions.

I prefer to do my first thinning of parsnips, and most of my sprouts, when they're very young. I've found if sprouts are teased out of the soil with minimal disruption, and planted elsewhere, they grow just as well as those that were never moved. The trick is to do it when the first two leaves (the seed leaves or cotyledons) come out. At this stage the plants are incredibly tough in terms of transplanting, as long as they don't dry out. Just poke a hole in the dirt, stick the sprout root into it, press the dirt around it, and water.

Once the parsnips are established, there's not much to do except to weed them. Because they grow slowly, they don't need much fertilizer. If a few leaves turn yellow, top-dress with rotted manure. Because they have deep roots, they're drought tolerant and only need added water if their leaves start to wilt.

Parsnips are incredibly easy to store. Just leave them in the ground until the ground is about to freeze solid. Freezing weather (25-35 F) will make them sweeter by converting starch to sugar. Parsnips, carrots, beets, and other roots convert starch to sugar to protect the plant from freezing,

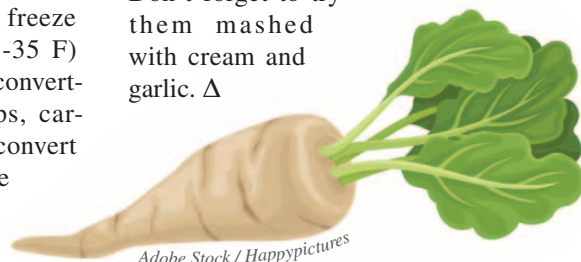


*This volunteer parsnip is growing between two railroad ties.*

because sugar reduces the freezing point of water. When water freezes, it expands, breaking the root cell walls and causing the root to be mushy and dead.

I never have parsnips left when the ground is icy hard, but if you do, dig them out before this happens and store the roots without touching each other in damp sand. The temperature should be close to freezing, but not below.

I have a tender spot for any plant that's easy to grow, and I hope you give parsnips a try. Don't forget to try them mashed with cream and garlic. Δ



*Adobe Stock / Happypictures*



# Ask Jackie

If you have a question about rural living, send it in to Jackie and she'll try to answer it. Questions will only be answered in this column. Email your question to [jackie@backwoodshome.com](mailto:jackie@backwoodshome.com).

— Editors

## Drying pole beans

*I let my green pole beans go at the end of the season. When they become dried out, can I shuck them and use them like regular dried beans? Do they need any additional drying before I store them?*

Susan Traxler  
Dorr, Michigan

Yes, after any beans dry down, you can shell them and use as both seed for next year and in any recipe calling for dry beans. When we sponsored our Vietnamese family back in the '70s, they grew lots of Provider beans to eat fresh and can up. When they were done, they let them go to maturity. Then they harvested the dry beans and used them for soup and baking, just like red kidneys. They were great! Yours will be too.

— Jackie

## Living with wildlife

*We just moved from Ohio to a homestead in northern Montana. We have dangerous wildlife around like rattlesnakes, bears, and wolves and I'm so scared they'll attack us. I'm afraid to go out in the yard to feed my chickens! I know you live and have lived where these animals are. How do you deal with it? I hate being so terrified. I'm scared to go to sleep at night for fear something might break into the window above my bed.*

Alice Drover  
Eureka, Montana

I understand your fear. After all, movies like *The Adventures of the Wilderness Family* portray wildlife as scary and terrifying. Yes, a rattlesnake can bite you or a bear could kill you. But the chances of that happening? Very slim to none. Hundreds of people are killed driving their car every day in the U.S., yet nobody thinks twice about hopping into the car to run to town. Maybe about two to three people are killed by a bear in a year, and everyone freaks out. Of those, many are hunters who either stumble on a bear that feels threatened, or are in grizzly country. Bears sometimes learn that when a rifle shot is heard, there's a gut pile handy and a hunter gets attacked inadvertently.

Yes, we hunted in Montana. But we were very careful and observant about what was around us, keeping watch and field dressing quickly.

Around a homestead, you'll very seldom see a wolf or cougar, even long-distance. My youngest son David was taught from an early age, if confronted by a cougar, to pull his shirt up over his head to look bigger and pick up a stick for a club to look threatening, while slowly backing away. He ran the mountains and is still living. He never saw a big predator. We live with wolves around us and hear them every day. Are we scared? Nope. Wolves, despite the movies, don't attack people. They will attack a dog, just like a coyote, but not people. Period.

Keep your homestead clean. No board piles or long weeds around the buildings to attract rodents which will attract rattlesnakes. No dog food or bird food outside at night, which attracts bears. Learn to be observant. Don't walk over a log or rock without looking; a rattler may be sunning



Jackie Clay-Atkinson

on the other side. Don't hike alone through dense brush or you may surprise a bear. If he knows you're coming, he'll nearly always turn and leave; if he's surprised, he may attack. Always be calm and quiet around wildlife. If you see something scary, stand still and speak to it calmly. Then slowly back away.

Some folks pack a pistol wherever they go on the homestead, just in case. Honestly, after living around wildlife all my life, I find that heavy and bothersome. Maybe I've just been lucky, but I truly believe live and let live generally works.

If you don't currently have a dog, why not invest in one now. You don't need a fierce guard dog. A labrador or shepherd makes a good homestead companion that will alert you to any threat.

Oh, and having a wild animal break through your bedroom window? It'd be more likely to be your drunken neighbor. Relax and enjoy your new homestead. — Jackie

## Dry pressure canning meat

*What is your opinion or experience of dry pressure canning meat?*

*I have Thanksgiving leftover ham and wondered if it is possible to pressure can without juice/water/broth. It*



*has the ham glaze on it, and I would rather not dilute it off the meat. I can vacuum-seal and freeze it, but thought it would be nice to have it in sealed jars in my larder as another prepping meat.*

**Elizabeth Johnson**  
Redding, California

I have dry canned some forms of meat like smoked trout and salmon plus ground beef/venison, which turned out very well. I did try ham but wasn't happy with the result as the ham tended to dry out. So, I switched back to adding ham broth to the jars. That way it is very good. Just like freshly fixed ham! — **Jackie**

## Homemade chili powder

*I would like to make some chili powder myself. This is what I have:*

1 Tbsp. ground cumin  
1 tsp. ground turmeric  
1 tsp. dried oregano, finely crumbled  
1 tsp. garlic powder  
1/8 tsp. ground cayenne pepper  
1/4 tsp. salt  
1/4 tsp. ground black pepper

*I would like to know how do I save the seeds from the cumin plant and take it from the plant. I do not like my chili overly hot, how can I have it not so hot? Is it the paprika or the cayenne pepper that is making it with so much heat? I like chili a lot just not the heat of it. Can you help and tell me about the cumin? I was looking at black cumin plant. Is that the one good for chili powder?*

**Bernard Harris**  
Carlisle, Indiana

To save seeds from your cumin plant, start the seeds indoors about six weeks before your last spring frost. Once safe, plant outside and care for it well. After it blooms, the seeds will set where the blooms were. When they are dry, cut the heads off into a paper bag and pound on it with

your fist or a smooth, fat stick. The seeds will release. Remove the spent seed heads and any large debris. On a moderately windy day, winnow the seeds by lightly pouring them from one container to another held below it. The small pieces of chaff will blow away, leaving clean seeds. It's a good idea to lay them out on a plate or cookie sheet to ensure they are completely dry. Pour into a clean, dry jar and cap. The seeds are then ready to use or store.

It's the cayenne pepper that is making your chili hot. You can easily substitute mild chili powder for the cayenne, giving the chili robust flavor but way less heat.

You can double or triple this recipe so you have more chili powder on hand. — **Jackie**

## Preserving hot cocoa

*Our church had a play the other night with refreshments after. I made a huge batch of apple cider and hot cocoa. I know I can can the cider, but I want to can the liquid cocoa as well. Everything I've found says don't. This was store-bought cocoa mix that I made up and heated up. Is it possible to can it in quart jars or should I just pour it into jugs and freeze?*

**Donna Naughton**  
Crumpler, North Carolina

I believe this is one recipe I'd freeze, rather than can. I have canned chocolate ice cream topping and milk. But I'm afraid the mix might not be exactly what you'd want as hot cocoa. If you do freeze it, be sure to allow enough headspace for the mix to expand when it freezes. — **Jackie**

## Canning on a gas range

*I just canned 5 quarts of chicken soup on a new gas range and once it reached 10 psi the burner was set as low as it would go and the pressure kept climbing. I turned the burner off and on every 30 seconds or so to keep it between 12-13 psi but that's obvi-*

*ously not ideal. I'm not sure how high it would've gotten if I didn't. There was no siphoning. The other front burner is slightly smaller, but is right next to the refrigerator and I'm concerned about the heat. I was curious if you had any remedies, or if I need to pull the fridge out, or cut some plywood to put in the 2-inch gap between the two as a heat shield. The experience and knowledge you share is truly a gift for a beginner canner like myself.*

**Nolan V.**  
Burlington, Iowa

I've had that issue with our fairly new gas range. It seems that all of the four burners have different heat settings and won't go above or below a certain temperature. I started out canning with my pressure canner on the front right burner but it was way too slow building up steam. I switched to the front left burner, and it was much faster. But there, again, it wouldn't reduce the heat enough to keep a steady 12 pounds pressure. Now I start the canner on the front left burner, then when it hits pressure, I slide it back to the back left burner, where I can adjust the heat perfectly. I don't think I'd put plywood between the fridge and stove, as it could be a fire hazard since plywood is flammable. Perhaps a stove mat would work better. They are tin on one side and a non-flammable material on the other. I would put it right up against the fridge, so the tin side was toward the stove. Good luck! — **Jackie**

## Homemade dog food

*Do you have any good recipes for nutritious homemade dog food? Before the 1950s there wasn't commercial dog food and folks just fed their dogs leftovers and table scraps. And if what I read is accurate, dogs lived longer and healthier lives.*

**Doug Wetherill**  
Bedford, Virginia



Yes, you can certainly make home-made dog food. However, be sure it is a balanced diet. Homemade foods are often cheaper than “fresh” cooked or raw dog food, but do cost more, in most cases, than dry dog food of good quality. I’ll give you a couple of recipes to try.

1 lb. turkey or chicken thigh meat, no bones  
½ lb. turkey or chicken organ meat  
½ cup cooked pumpkin or squash  
1 tsp. salmon oil

Grind meats together coarsely. Add mashed pumpkin or squash and salmon oil. You may feed raw or gently cooked. Baking or steaming is preferred to boiling.

1 lb. lean meat (venison, critter meat such as beaver, beef, chicken, turkey)  
1 cup mixed vegetables, such as peas and carrots or pumpkin  
1 cup brown rice, cooked  
2 eggs, cooked and chopped  
1 tsp. salmon oil

Grind meat coarsely. Cook with vegetables. Add rice, hardboiled eggs, and salmon oil.

These are just a couple of recipes to give you an idea. Of course you may also add lean table scraps (no heavy fats, easy on onions as dogs can’t handle them well). Some folks tout raw foods, where others find they sometimes give dogs upset stomachs. Always ease into any food changes gently. Also be sure to either refrigerate or freeze any extra fresh food you make for your dog. — *Jackie*

## Preserving herbs and spices

*Will refrigerating or even freezing herbs and spices in well-sealed containers extend the life of their potency? By potency, I mean both their flavors and their healthful properties.*

*Truck Johnson  
Bangor, Maine*

While refrigerating herbs and spices will extend their life, for longer and more dependable results, freeze them. Pick your herbs at peak freshness and quickly rinse, shake dry, and air dry in a protected area. Then cut or chop them, removing any coarse stems. Pack them tightly in small freezer bags of good quality. The cheaper bags will often come unsealed after a time in the freezer and the herbs will lose both flavor and nutrients. Immediately label, date, and lay in the freezer in a single layer to quickly freeze. I use small bags as the continual opening and closing of the freezer bags will damage the quality of your herbs and spices.

Spices will remain good in airtight containers nearly indefinitely when frozen. Herbs should be used within a year or so for best flavor and nutrition.

— *Jackie*

## Fermenting honey

*I was watching videos about how to make a fermented medicinal mixture using garlic and honey. Peeled garlic is placed in a jar and covered with raw honey. (A little sea salt is added in some of the recipes.) The jar is sealed, set aside, and allowed to ferment, but is opened just about every day to allow the carbon dioxide buildup to escape. After a suitable amount of time, it can be used to treat colds, flu, etc. But here’s my question. First, I understand honey should not be fed to infants because of potential botulism poisoning. It also seems to me that you’re creating an anaerobic environment deep in the honey mixture, and anaerobic conditions are what botulism bacteria thrive in. So, just how safe is this mixture if I make it at home?*

*Ellis Rose  
Gruene, Texas*

Although there have been isolated cases of honey-linked botulism in babies, this has been very, very rare. The caution regarding this is because

infants are much more tender and susceptible to many different bacteria, where adults are not, having developed more immunity. Nearly all honey is acidic, although sweet, having a pH of between 3.5 to 3.9. It is also antimicrobial in nature, as is garlic. To be absolutely sure your honey is acidic enough, ensure it IS pure honey, as some is now diluted with corn syrup to make it cheaper. Buy local and you’ll know!

If unsure, and wanting to be absolutely sure, just add a little apple cider vinegar to your mix. — *Jackie*

## Japanese beetles

*We really struggle with Japanese beetles. We don’t dare grow green beans or peas. They go crazy on them. We’ve tried many sprays, powders and bag traps. Any suggestions?*

*Patrick Eavey  
Mancelona, Michigan*

We’ve had luck with using Bt powder, being sure to powder under the plants’ leaves as well as on top. If this natural cure doesn’t work for you, I’d advise using row covers over the plants, weighted or earth-stapled down firmly on the sides. This physical barrier does wonders and is a cheap fix. — *Jackie*

## Dandelion greens

*At what stage is it best to gather dandelion greens for cooking? Can dandelion greens be canned? Can they be readily included in soups and stews?*

*Mildred  
Bellefonte, Pennsylvania*

I prefer to gather my dandelion greens early in the spring after they have gained some decent size. I like to pick them first thing in the morning when the dew is still on them for perfect freshness and flavor. Of course, never pick them from roadsides having heavy traffic or lawns



that could have been sprayed with chemicals.

Dandelion greens are wonderful canned. Just follow the directions in your canning book for “greens” or spinach. They are a wonderful ingredient added to both soups and stews, as well as to such recipes as quiches, casseroles, and salads. Don’t discount the roots either! I pull the big ones out of my gardens, wash the roots very well, roast them on a cookie sheet in the oven at a low temperature, then grind them in my blender. My husband Will agrees they make a beverage that tastes a whole lot like coffee. He prefers it to Folgers! — *Jackie*

## Preserving eggs

*Is it a better practice to dehydrate eggs or to can them for future use?*

*Gail Robinson*

*Whitefish, Montana*

How about neither? Although a lot of folks are dehydrating them at home, I’m still skeptical, worrying about salmonella or other bacterial growth. Yep, I know “rebel” canners are canning them. There, again, I’m not. You can easily freeze eggs. Just break a dozen or so in a large bowl, whisk them well, then add a good pinch of either salt or sugar to about each half cup of egg to improve stability and texture. I ladle the whisked eggs into plastic ice cube trays and immediately freeze. Once frozen, dump the egg cubes into a freezer bag, extract as much air as possible and refreeze immediately. These eggs are good for about a year. You can use them in any recipe.

Another note: Your own unwashed eggs will store for months in a cool dark spot, like your root cellar or unheated basement. Did you know store-bought eggs are not fresh? They’ve been around for weeks before you buy them! I used to gather late-fall eggs when we lived very remotely in Montana, store them in our cold pantry, and use them right

up until early spring when the chickens started laying again. Yes, I always broke them first in a cup, just to ensure they were not bad. — *Jackie*

## New to homesteading

*I am wanting to become a homesteader and I am unsure where to start. I have land. I am just needing guidance on the best action plan.*

*Mary Lou Gingseng*

*Millstadt, Illinois*

First off, is there a cabin or house on your land? That’s a big one: shelter. You can start small, building a “garage” and turning it into a cabin. That’s what my son Bill did when building his log cabin from the ground up. It took nearly five years as he cut the logs, peeled them, then built a three-bedroom log house.

When we moved here, we got a free mobile home and used that while we built our log home from a kit. (You can read the entire story in *Starting Over*, available through *Self-Reliance* and *Backwoods Home Magazine*.)

We are off-grid so at first our power came from a generator. We hauled water from a local spring as a mobile home is not water-enabled during a Minnesota winter. It was basically a hard-sided tent with lots of room. We used a bucket with pine shavings as a toilet.

Whatever you do, please go slow. Way too many people give up by expecting and wanting too much too soon. If you want animals, start with chickens after you build a chicken coop. Once proficient with them, you may want to expand with dairy goats or rabbits. Do what you are comfortable with.

I’ve seen many people who homestead fail because they came onto a new homestead figuring they would live off the land, have a huge garden, spin wool, make their own clothes, burn wood, have lots of animals ... the whole nine yards! Hey, it took us on our new homestead a year to

establish a chicken coop, goat barn, and a *very* small garden. We didn’t have solar until we got three small Harbor Freight panels and two batteries, three years down the road.

If you can afford a well, if one is not currently on your land, that’s one of the very first things to do. They are not cheap!

Depending on the zoning regulations, you may or may not be permitted to use an outhouse if you don’t have a house with septic on your land. Regulations vary from area to area. Do *not* listen to those who say, “It’s your land, do what you want. They’ll never know.” Yes, they will, and you’ll end up with big fines.

Keep reading this magazine and pick up some of the wonderful anthologies, also available from Self-Reliance Publications, to help you out step by step. And please keep asking me as you progress. I’m always very happy to help. — *Jackie*

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# Savory stuffed wild grape leaves

By Jim Capossela

If you were to make up a “most wanted characteristic” checklist for a wild edible, here you might just check off every single box. The plant, wild grape, is widely distributed. Identification down to genus level is comparatively easy. The leaves are extremely easy to gather in any quantity you desire. The stuffing lends itself to much creativity. The end product is nutritious and makes a superb appetizer. It’s a low-calorie treat that can be fat-free, and that can be made meatless or with meat. This

appetizer is even within reach of the non-forager: You can buy preserved grape leaves (see ahead) then design a filling that suits your tastes.

But so much more fun is it to go out and gather those large, robust, accommodating leaves, and of course, with that you sidestep the preservatives found in the bottled leaves. And one more virtue: It’s perfect for a friendly roundtable where pleasant company, foraging inclined or not, can sit down and roll away. The Bible says, “... take a little wine for the sake of your stomach.” But the fruit of the

vine extends beyond that clustering fruit. I say, “Take a few stuffed grape leaves with cheese and crackers” — and maybe a dark beer on the side.

Most of the recipes I looked at in print and online failed to suit me in one way or another, so I really struck off on my own when I started to compose these recipes a number of years ago. I offer two recipes, plus a few ideas on accompaniments. One of the two stuffed-leaf recipes includes lamb, an important Greek food and very traditional with this Mediterranean and Aegean appetizer. The other one is meatless and can handily be made vegan. I don’t normally serve these rolls with a sauce; rather, I think cheese and crackers are the perfect go-alongs. Nonetheless, the accompaniments I describe are well embedded in Greek food culture and pair perfectly with the stuffed leaves.

I’ve seen recipes, both meat and vegetarian, that incorporate some sweetness — raisins or, more often, dried currants. I tried this once and distinctly disliked it. To my taste, this unique two-bite morsel is, and should be, savory — or piquant if you prefer that term. That label, as I use it, has plenty of elbow room, but it excludes sweetness. You’ll also see mint — a favored ingredient in that part of the world — excluded in my takes. I similarly have a dislike for mint in non-dessert dishes and do not use it here except in one of the accompaniments. The nuts do add a touch of sweetness, but only a touch.



*Most if not all grape vines climb by the use of forked tendrils. This trait is not exclusive to grapevines, but is nonetheless one good identifier.*



## Forage grape leaves

First, some preliminary information, and notes on lookalike plants that you need to avoid.

Like all treatises on cooking with wild foods, this article is meant to be used in conjunction with reliable field guides. There are some 30 species of wild grape according to one tally, 50 or even more according to others, and to that add cultivated escapees from vineyards large and small. Also, grapes often hybridize, although the exhaustively complete *Britton & Brown* volumes state that hybrids are not often seen in the wild.

Always be sure of your identification. You couldn't do better than find your plant in fruit then come back the next year to harvest your leaves. That is precisely my MO. When wild grapevines hang thickly in fruit, you can sometimes smell them yards off. (By the time grapevine fruits mature, the leaves are always past their prime here in the eastern United States.) I also can't emphasize enough the benefit of hooking up with other, more experienced foragers when you're still learning. I'll tack on that you can't have too many foraging books.

It's likely that all the leaves (and grapes) that I've ever harvested wild were from one or another variety of one species, *Vitis labrusca*, often called fox grapes. Recent research into fox grapes caused me considerable angst. This stemmed from the fact that descriptions of the leaves varied from source to source. In an older Peterson guide the underside of the leaf is described as "covered with red, woolly felt." In a book by east-based forager Steve Brill, he describes the bottom of the leaf as "whitish or reddish." In yet another article, I see the bottom of the leaf described as being "brownish white from woolly hairs." Could I have been harvesting not fox grapes but a different, if equally edible wild grape and its leaves? I tossed into the car my most technical books including



*On the left is the underside of a grape leaf and on the right the underside of a porcelainberry leaf. Sometimes, the two almost look identical, but leaf shape is generally one of the poorer plant identifiers. Using the best taxonomical keys, the vine this leaf came from appeared to be either fox grape or a hybrid, one parent of which was fox grape. But all wild grapes are thought to be edible.*

my weighty *Britton & Brown* and drove 30 minutes to the vine where for years I had harvested grapes that had all the markers for fox grapes and that I assumed to be those. But this time I carefully examined all the technical characters present at that time of year, paying particular attention to the locations of the tendrils relative to the leaf nodes. I could conclude to 95 percent certainty that these were indeed fox grapes, *Vitis labrusca*, or a hybrid one parent of which was fox grape, or some very closely related plant. Yes, physical characteristics of plants can vary, which is why self-questioning is one of the things that can keep foragers safe. You say 95 percent is not good enough? With some plant groups that would be true, but remember that here I was harvesting leaves from vines from which I'd often picked grapes that had every characteristic of fox grapes. There was no safety issue. And I'm still sitting here after a few dozen jars of grape jelly.

One reference calls *labrusca* "the native, North American parent of many grape cultivars, including Concord ..." Thus, fox grapes put

forward a distinguished pedigree. The website Wikipedia states that there are a number of varieties of *labrusca*, to include both red and white grapes. You start to see the difficulty in pinpointing species in a very safe yet very varied plant group.

Late last October I stopped at a hole-in-the-wall roadside barbecue shack, and while my take-out order was being prepared, I wandered around the potholed dirt parking lot, debris of all sorts helter-skelter. At its edge, I was startled to see fox grapes dangling in incredible clusters. I was surprised for two reasons. First, although I often come across fox grapes, most don't bear fruit. I usually only find actual fruiting vines where the ground is somewhat to very moist and this site was dry. Second, it was fairly late in the season for this fruit at that latitude. I tasted a grape. It was uncommonly sweet, perhaps having been touched already by frost. I harvested as many as I could reach, and this late season fruit made the most delicious grape jelly I'd ever made or tasted. I relate this story to convey that a forager should always keep his eyes open, for serendipity





To prepare a fresh leaf for rolling, just press it down into simmering water and leave for about 45 seconds. A pair of bacon tongs is useful here.



We use a tiny pair of snips to cut off any remaining bit of stem before starting to roll the leaf.

can occur just about anywhere. In the vehicle be sure to always have a small digging trowel along with a goodly number of paper and plastic bags and rigid plastic containers. And never leave the camera at home!

It's now early spring but I surely will go back to this cornucopia for both the leaves and the fruit — when a wild grape vine does fruit it usually does so every year.

While fox grapes are a good one to look for, exactly where do you look? I prowled around places where civilization has once been but where the people have disappeared. In fact, I'll go

so far to say that some of the “wild grapes” I've found were likely one cultivar or another of concord grape that were originally planted by people whose homesteads have been swallowed by the woods. On that point, in any rural or semi-rural area, check around abandoned farms, or even in the woods where the chimneys and foundations of long-gone settlements still stand like eerie apparitions.

If no luck there, you'll have to explore the species in your region and find the best ones for leaf stuffing. In *Field Guide to North American Edible Wild Plants*, authors Thomas

S. Elias and Peter A. Dykeman cite three grape species as worth looking for: Riverside Grape (*Vitis riparia*), Frost Grape (*Vitis vulpina*), and California Grape (*Vitis californica*). I've encountered frost grape but the vines I observed did not bear such good fruit. I have no experience with the other two. I'll add to the list Summer Grape (*Vitis aestivalis*), or its variant/subspecies, Silverleaf Grape. I have no proof but I have a strong hunch that fox grapes interbreed with silverleaf grape.

Not really forage-minded? Really knowledgeable foragers of my acquaintance gripe about the preservatives in commercial grape leaves, so you'd have to make up your own mind on that. I do use them at times, and did partially use them here to abet the text and photos.

Wild grape has few toxic look-alikes. One that fooled me — though I caught myself in time — is Canada moonseed. This is also a vine but unlike grape it spreads by winding, not by tendrils. Once you know it, it isn't hard to identify. One unmistakable characteristic concerns the position of the leaf stem — it penetrates a short way into the leaf, unlike with grapes.

Another possible source of misidentification would be the already mentioned porcelainberry. In fruit, you can't confuse it with grape, as it has very distinctive multicolored small berries that bear no resemblance to grapes. It should not be hard to avoid this vining pest. A native of Asia, it is now well established in the eastern United States and to a lesser extent the Midwest. Its further spread seems likely.

There could be other inedible plants that bear some resemblance to wild grape. In a discussion like this, regional bias cannot be avoided, so every forager has to go slowly in assessing the plants found in his or her own area.



## Stuffing the leaves

Preparing your leaves for stuffing is easy. If they're from a jar, just douse them very briefly in cool water to remove any brininess. This was not even necessary with the leaves from a jar I recently purchased; there was no detectable brininess. If the leaves are freshly gathered, I usually heat water in two large skillets to speed the process, and bring them to a low simmer. I place the leaves in the water for a scant 45 seconds then remove them to a platter. They will have changed color and will now look identical to the bottled leaves; they will not stick together on a plate. Traditional Greek cooks sometimes just pour boiling or very hot water over the leaves in a large basin. The point is to soften them for rolling, but don't think that this "cooks" the leaves. If you don't cook/steam the rolled leaves long enough the leaf will remain tough and you won't like the finished product.

### **Jim's basic stuffed grape leaves (meatless):**

Makes about 30

This was my first and remains my essential stuffed leaf recipe. I've made it many times, varying it a little here and there as the muses lead me. Using the flavor-imparting stock as the steaming medium is not something I've seen in existing recipes, so I'll call it original until I find its use elsewhere (as I almost surely will).

Here you lack the considerable moisture of the fried meat, so to make up for that and to help the mixture hold together a little better, I add a touch of soy sauce and one egg white.

30 large grape leaves, free of blemishes  
1 cup cooked plain couscous  
½ cup ground English walnuts  
1 medium clove garlic, minced fine or pressed  
½ cup onion, finely chopped  
1½ Tbsp. fresh parsley, stems removed, finely chopped  
½ Tbsp. fresh thyme, stems removed, finely chopped  
2 tsp. soy sauce  
1 egg white  
About one pint rich chicken stock or broth  
Extra virgin olive oil

1. Prepare the leaves as just discussed above. If not using right away, cover with plastic wrap and refrigerate.

2. Cook the couscous according to package directions. Measure out one cup and turn into a medium size bowl. Add the walnuts, garlic, onion, herbs, soy sauce, and egg white. Stir to mix well. Cover and refrigerate overnight to allow the flavors to come



*Place a scant tablespoon or so onto the bottom of the leaf where the stem was.*



*You have to start tucking in the edges of the leaf as you roll. You would actually use the fingers of both hands for this.*



*Here is a finished roll. We like to roll on a cutting board as it absorbs any excessive water that might be clinging to the leaf.*





*These rolls have been steamed in the covered pot for about 25 minutes. They're tender and done.*

together. Taste in the morning and adjust the seasonings as desired.

3. Lay out your grape leaves and other items on a table as shown in the photos. Follow the photos and photo captions for filling and rolling the grape leaves. Place each roll seam side down on a platter as you continue to roll.

4. Pour your stock into a large pot. Place a collapsible metal steamer basket in the pot and bring the stock to a low boil. Put in your stuffed leaves in a circular pattern and extending partway up the sides of the basket as needed. If necessary, it's OK to make the rolls two layers deep, but I wouldn't make more layers than that. Cover the pot tightly and steam over a low boil for about 20-25 minutes until a fork inserted in one roll indicates that it is tender. When cool enough to handle, remove to a tray or platter to cool fully. If you use a pressure cooker the rolls will be done in about five minutes.

5. Place the cooked rolls in a suitable flat plastic or glass serving dish with sides — or a couple of them if necessary — and over the rolls drizzle a little olive oil. Serve right away or refrigerate for future use. If you do refrigerate the stuffed leaves, the oil will congeal. So allow them to come

back closer to room temperature before serving. Crackers or squares of dark or rye bread, or toast, and almost any kind of cheese, will go well with these. Feta cheese squares pinned with toothpicks would be very Greek.

#### **Tzatziki:**

Makes about 1¾ cups

This is sometimes called a sauce, but more often it's the consistency of a dip, and you certainly could use it that way with chips or crudités. It's often served in Greek restaurants in this country, and I think a dab of it applied to the tip of a stuffed grape leaf is a nice enhancement. This is one of the few places where I use mint in a dish that isn't a dessert or a tea, and is the only appearance of mint in this article.

Setting out to make this for the first time, I observed that it was readily available in supermarkets and even in a medium size grocery store where I picked up a 12-ounce container of it. Because of the long list of ingredients, and the preservatives, it wasn't something I normally would have purchased. But I took it home to use as a model and to see what I could learn from it. It has numerous ingredients that do not occur in *The Complete Greek Cookbook* by Theresa Karas Yianilos; I took ideas from both

her book and the store-bought version to formulate my own recipe. I want to mention that the commercial tzatziki I purchased — rather tasty — listed dill as an ingredient. I like that idea and will try incorporating a little dried dill into the next batch I make. I've made this dish a few times and think I like it better without the optional garlic. Garlic lovers might want to include a small clove.

1½ cups non-fat, plain Greek yogurt, such as Fage  
⅔ cup cucumber, much less than one whole one, finely minced  
⅓ cup scallion, finely minced  
1 Tbsp. rice vinegar  
½ tsp. sugar  
½ tsp. salt  
¼-½ tsp. pepper  
½ tsp. garlic, finely minced (optional)  
1-1½ tsp. fine dried mint

1. Measure out your yogurt and turn into a medium size bowl.

2. I use seedless ("English") cucumber, which has seeds but these seem to be smaller and less obtrusive. I do not scrape them out, but do so if you wish. Peel the cucumber and cut into strips. Then use (ideally) a 10-inch chef's knife to finely mince. Turn into a clean dishtowel and squeeze out all the liquid, which will simply be absorbed by the fabric. Add to the bowl with the yogurt.

3. You'll need about two large scallions. Remove the membrane then finely mince, using the white part and some of the green up to where the scallion branches. Measure out the indicated amount, or a little more if you wish, and add to the bowl.

4. Add the rest of the ingredients and stir well. The mixture must sit in the refrigerator overnight for the flavors to come together.

5. The next day, taste and if necessary adjust the salt, pepper, and acidity. Stir if the mixture has partially separated, and do that each time after it has been refrigerated.



Stuffed grape leaves are probably most closely associated with Greek cookery, where they are called *dolma* (actually a Turkish word), or the plural, *dolmades*. In her Greek cookbook, Ms. Yianilos speaks on this subject. Far from being all Greek to me, this nice 1970 book (in English) is easy to relate to because of its overall earthiness, and for a few recipes for plants the USA forager might encounter. She has but one recipe for *dolmades* in her book. It isn't quite Byzantine — that's her title for it — but it's still relatively involved. From it I did pick up a few ideas on proportions. With its many fascinating references to the use of food in ancient Greece — she quotes both Plato and Socrates for example — the book is worth looking for through out-of-print book services.

White vermouth is one of my favorite kitchen ingredients. I added it here for a bit of flavor and also to help the mixture hold together a little better. Feel free to tap an opened bottle of white wine as a substitute.

#### **Jim's stuffed grape leaves with lamb:**

You can imagine the entire rich, Hellenistic pageant unfolding before you when you make this dish. If your imagination is somewhat more limited, you can simply enjoy a few of these along with a cold beer.

Convention has you cooking the rice until only partially done, say three-quarters. I ignore this advice and cook the rice fully, and I really don't think it matters much. If the rice gets a little bit too soft in the final cooking, that shouldn't be a problem in the context of this recipe. I mentioned the drizzling of oil over the rolls in the previous recipe. With a recent batch I had an inspiration that, to my tastes — remember I was after "piquant" — really pulled this dish together. That was to sprinkle on a little tarragon vinegar after the oil. Try it with and without a flavored vinegar of your choice and see which one you like.



*Here are the ingredients — named and described in the text — for my homemade tzatziki.*



*A dab of tzatziki on a stuffed grape leaf is a nice enhancement to this unique appetizer.*

1 cup cooked long-grain rice  
 2 Tbsp. extra virgin olive oil  
 12 oz. ground lamb  
 ½ cup onion, finely minced  
 1 clove garlic, pressed (optional)  
 ½ tsp. salt  
 ¼ tsp. pepper  
 ½ tsp. dried oregano  
 ½ tsp. ground cumin  
 1 Tbsp. fresh lemon juice, or to taste  
 2 Tbsp. white vermouth or dry white wine  
 Grape leaves for stuffing  
 About a pint of rich chicken stock or broth  
 Additional olive oil  
 Tarragon vinegar (optional — see above)

1. Cook the rice according to package directions. You might lightly rinse the rice at this point. Put into a strainer over a pot to allow to drain. Measure out one cup and put aside.

2. In a large skillet, heat the olive oil. Add the lamb, then break it up with the back of a stout wooden spoon. Cook, stirring and breaking the meat up into small pieces, until very lightly browned all over, about five minutes. It will cook further in the final step. Add the rice, onion, garlic if using, salt and pepper, oregano, cumin, lemon juice, and vermouth. Stir to combine. Taste the mixture. Not sharp enough? Add a little more onion or other ingredients you like. This is a malleable formula.





*An appealing and very Mediterranean appetizer tray: stuffed grape leaves, cheese, tzatziki in the small bowl, blue corn chips for dipping, and some taramosalata spread on crackers. A small glass of ouzo, anyone?*

3. Place about one well rounded teaspoon — I'd call this a scant tablespoon — onto each prepared grape leaf and roll as shown in the photos. Of course the larger the leaf the larger the clump of stuffing you'll need.

4. Pour the stock or broth into a large pot. Use a nice wide pot — I use a 7-quart pot that measures 10 inches across the top. (The reason for this is that the metal steaming basket you put in the bottom of the pot can spread out wide to contain the rolls.) The broth should come up to the bottom of the strainer or nearly so. Put in your grape leaves, as shown in the photo. My pot accommodates about 25 in one layer but you can make a second layer if using a narrower pot.

5. Steam the rolls for about 20-25 minutes or until a fork stuck into one of them indicates that the roll is tender. When cool enough to handle, remove to a platter to cool fully.

6. Very lightly drizzle olive oil over the rolls. If you like the idea of the vinegar, drizzle a little of that over

the rolls. You don't want the rolls swimming in either the oil or the vinegar. Serve at once or refrigerate. The oil will congeal, so if the rolls have been refrigerated allow them to warm slightly on the counter before serving. I don't like these rolls warm out of the pot or refrigerator cold, but somewhere in between in temperature. Suit yourself in that regard.

#### **Taramosalata:**

Another classic Greek preparation, this salty dish — most often termed a spread — lets even those of modest means into the rarified world of caviar. It's made from "tarama," the salted and cured "white roe" of carp, or sometimes cod or a species of mullet. I realize that singing the praises of carp roe won't make you the top conversationalist at the next potluck, but put it out in a small bowl along with your stuffed leaves and your

crackers and cheese and there'll be at least a few whispers on your state of culinary advancement.

I did find this product in that smaller, somewhat specialized green grocer where I bought the tzatziki. It was \$7.95 for an eight-ounce bottle. This turned out to be a pretty good deal when I made comparisons with internet prices. Actually, ordering by mail is problematic because the shipping can be very high due to the packaging necessary for this highly perishable item. In any case, I gave up on the idea of making it myself because of the expense and because there seemed to be relatively few options for purchasing the main ingredient — the "tarama" or roe — online. No stores near me carry it.

I'd looked at numerous recipes before I shelved the idea of a home-made preparation. Here are the ingredients used by Ms. Yianilos in her book. I include this list as I thought it might provide the enthusiastic home cook bent on making this spread with a few ideas.

Tarama (carp roe)  
Water  
Fresh bread crumbs  
Lemon juice  
Olive oil  
Onion

In many recipes I looked at, bread is used instead of bread crumbs, an alternative that my kitchen intuition would lead me to. Δ





# Italian scarpazzone:

## *A filling, affordable spring pie*

By Mary Bryant Shrader

When I was growing up, Saturday night suppers were usually simple, but my mom always had a way of making them special. She came from a Northern Italian family, and that heritage showed up at our table in all sorts of comforting, humble dishes. One of my favorites was a spring pie made with eggs, greens, and a simple crust.

It wasn't anything fancy, but it felt special because it was so scrumptious! My mom would pull it out of the oven, golden brown with a bit of filling bubbling up through the top crust, and set it down on the kitchen table with a big salad, and that was dinner. Nothing more needed.

At the time, I didn't know this dish had a name. To me, it was just Mom's Saturday night pie. But as I

got older, I learned that what she was making had deep roots in Lombardy, the region of Northern Italy her family came from. There, pies made with eggs, Swiss chard, and cheese were staples of the farmhouse kitchen. They went by names like *scarpazzone* or *Erbazzone*, and they were as practical as they were delicious.

### What is scarpazzone?

It is believed that scarpazzone originated in Northern Italy in the Valtellina valley in Lombardy, a mountainous region where life revolved around farming and making the most of what the land provided. The recipe is considered to be the "mountain cousin" of Erbazzone,



made by home cooks in the Emilia-Romagna region. Although there is a little variation in the name, both versions are made with Swiss chard, but sometimes cooks would add additional greens along with a variety of herbs. In neighboring Lombardy, cooks adapted it to local tastes by adding rice. Rice from the Po Valley's rice paddies found its way into nearly every humble meal, including savory



*Scarpazzone — a filling springtime pie*





pies like scarpazzone, to make them heartier and more filling.

The name scarpazzone is thought to come from *scarpazza* (a dialect Italian word for scraps), meaning it was a poor man's dish made from whatever was available. Or possibly its name came from the Swiss chard stems often used in the recipe. In addition to the green leaves of the plant, the recipe also incorporates the white (or rainbow) stems. These Swiss chard stems were referred to as the *scarpa* of the plant (a dialect word for shoe). However this dish got its name, it is delicious and ensures nothing is wasted.

## Recipes

### Rustic emmer pie double crust:

In Northern Italy, most traditional home bakers use grano tenero 00. It's a flour similar to all-purpose flour and is combined with whole grain emmer (farro medio) or spelt flours for rustic baked goods. In this recipe, you can replace the grano tenero, if unavailable, with all-purpose flour and the emmer or spelt flour with whole wheat flour. A crust made with hard red whole wheat flour will bake up a little darker and heartier in flavor. This substantial crust holds up under the weight of the filling. Makes one double crust for a 10-inch pie or skillet.

2 cups grano tenero 00 flour or all-purpose flour  
2 cups whole grain emmer flour (farro medio) or whole grain spelt flour  
1 tsp. fine-ground sea salt  
12 Tbsp. cold unsalted butter (1½ sticks), lard, or a combination  
1 large egg  
1 Tbsp. apple cider vinegar  
6-8 Tbsp. cold water

1. Mix flours and salt.
2. Cut in butter and/or lard until crumbly.



*Fitting pie crust into skillet*



*Adding the Swiss chard leaves to the sautéed onions and garlic*

3. Add egg, apple cider vinegar, then enough water as needed to form dough.
4. Divide into 2 disks, wrap, and rest for 30 minutes in the refrigerator.
5. Remove from the refrigerator and allow to soften slightly, then roll one disk for the bottom crust and one for the top.

If the dough feels dry or crumbly after all ingredients are mixed, slowly add extra tablespoons of water. The goal is a firm, pliable dough that holds together but isn't sticky.

You can replace 1 tablespoon of the butter with 1 tablespoon of olive oil to add tenderness and make rolling easier, especially if using standard whole wheat flour.





Adding whole eggs to Swiss chard filling

### Scarpazzone:

A traditional scarpazzone incorporates a couple of whole eggs right into the filling. This symbolizes good fortune and the return of the abundance that spring brings. When the pie is sliced, those eggs bake up bright yellow inside the filling and are thought of as little pockets of sunshine representative of springtime. They also add extra protein to the pie. Serves 6-8.

2 Tbsp. butter or lard  
1 medium onion, chopped  
2 garlic cloves, minced  
1 tsp. fine-ground sea salt  
¼ tsp. freshly ground black pepper  
8 cups Swiss chard, chopped (include stems, diced small)  
6 or 8 large eggs, divided  
1½ cups ricotta (or well drained cottage cheese)  
½ cup Parmigiano Reggiano or Grana Padano, grated  
1 cup cooked rice  
Rustic emmer double crust plus 1 beaten egg for wash

1. Heat butter or lard in a skillet.
2. Cook the onion on medium heat until soft.

3. Add garlic and sauté until fragrant, then season with salt and pepper.

4. Add Swiss chard to the skillet and cook until wilted. Let cool slightly.

5. In a bowl, whisk 4 eggs. Stir in ricotta, Parmigiano-Reggiano, rice, and chard mixture. Mix well with a wooden spoon. This is your filling.

6. Fit the bottom crust into a greased 10-inch cast-iron skillet or pie dish. Don't worry if the crust cracks. Just pinch it together with fingers dampened in water. Push the crust up to the edge of the skillet or pie dish.

7. Add filling. Make wells in filling and crack in the remaining eggs. Leave whole.

8. Cover with top crust, tucking it under into the cast-iron skillet or pie dish and crimp the edges. Don't worry if it's not perfect.

9. Cut 4 vents in the top of the pie crust.

10. Brush the top crust with beaten egg.

11. Bake at 375 F for 35-40 minutes or until the top crust is golden.

12. Cool 10 minutes before slicing.

### *Insalata di Campo* (field greens salad):

In the Northern Italian countryside, especially in Lombardy and Piedmont, families made salads not from store-bought lettuce but from whatever tender greens were growing wild or in their gardens such as young dandelion leaves, arugula, or lamb's lettuce.

Known as *Insalata di Campo*, or "field salad," this crisp salad is slightly bitter and dressed simply with good olive oil, a squeeze of lemon, and a few shavings of Parmigiano-Reggiano or Grana Padano. It's the perfect companion to scarpazzone. Serves 4.

2 Tbsp. extra-virgin olive oil  
Juice and zest of 1 medium fresh lemon or a drizzle of aged balsamic vinegar  
Sea salt and freshly ground black pepper, to taste  
6 cups mixed field greens (dandelion, arugula, baby spinach, lamb's lettuce, or whatever tender spring greens you have on hand), rinsed, dried, and torn into bite-sized pieces  
2 small radishes, thinly sliced (optional)  
1 small shallot, finely minced  
About 2 Tbsp. Parmigiano Reggiano or Grana Padano shavings  
White beans or cooked farro grains, to taste (optional)

1. In a small bowl, whisk together the olive oil, lemon juice and zest, salt, and pepper. Taste and adjust to your liking.

2. Place greens and sliced radishes in a serving bowl.

3. Pour dressing over greens and toss gently.

4. Sprinkle with minced shallot and top with Parmigiano Reggiano or Grana Padano shavings just before serving. Toss in a few white beans or cooked farro grains for a heartier salad. Δ



# Three ways to produce a functional blowgun

By L. Woodrow Ross

**B**lowguns are useful tools that are fun to make and use for target practice or for taking small game.

The photos and instructions in this article will help you to assemble a blowgun. It may not be exactly the way they were constructed in past days, but the finished product will provide an interesting conversation piece.

## Materials

The main barrel may be made from a choice of several materials in lengths of six to eight feet. Shorter lengths may be chosen, but will not be as accurate. I have made blowguns out of bamboo, PVC, and conduit.



*Left to right: dart quiver, bamboo skewers with thistle down fletching, and metal hanger material with fly tying yarn fletching*



*Three types of blowgun, from top: bamboo, PVC, and conduit*





*Drilling*

Note: Bamboo requires removal of interior nodes by use of a long-shanked drill or, if green, they may be pushed out with a small cane or a long, thin rod. The inner surface must be polished smooth by gluing sandpaper to a thin rod, or applying sand to a shaft with glue.

The interior of PVC or conduit will already be smooth.

The cane may be painted if desired, and the PVC and conduit can be wrapped with camouflage tape for ornamentation or concealment when hunting.

### Forming the mouthpiece

Any good hardwood may be used for the mouthpiece. Measure the outside diameter of the blowgun and select a drill bit of that size or slightly larger (no more than  $\frac{1}{16}$  inch larger). Use two-part epoxy to attach the mouthpiece. After attaching, sand the side facing the user to ensure a smooth surface.



*Sanding*



*Adhesive applied*



*Finished mouthpiece*

### Blowgun darts

It is important that the darts be made properly to ensure accuracy. Darts may be made of various types of material, but must be straight and properly fletched.

I have made darts from bamboo skewers and straight sections of wire hanger material. The skewers already had sharp tips, but the wire hanger material had to be sharpened.

Fletching material may be cotton ball fiber, egg pattern yarn from fly tying, or thistle down. On a trip to Montana, a friend and I found and

collected a bountiful supply of thistle down. I have found that the ancient people who used this material chose well.

The secret to fletching darts is to have the fletching large enough to fit the bore but not too tight to hinder propulsion.

Blowguns of this type are not toys. They can be very accurate up to 50 or 60 feet. The bamboo darts are lighter and have less penetration, but are still dangerous. The wire darts are heavier, can be made needle sharp, and have great penetration. Δ



# Ayoob on Firearms

## How to hold your firearm

By Massad Ayoob

Photos by Gail Pepin

One of the first things the first-time gun owner needs to know is “How do I hold this darn thing?” The grasp of the firearm is the primary interface between operator and machine, after all.

We’ll talk first about how to hold it when actually shooting. Let’s start with long guns. Rifle, shotgun, or submachine gun for that matter, the dynamics are the same. The points of user contact are firing hand in the trigger area, support hand forward on the fore-end, a third contact point on the shoulder, and ideally a fourth point, a “cheek weld” on the comb (top edge) of the stock that aligns the eye with the sights.

Marksmanship manuals show a slow-fire shooting stance in which the shoulder is rocked back and the palm of the hand rests under the fore-end, or under the extended magazine of a rifle such as an M14 or an AR-15. This creates a solid line of skeletal support all the way down to the heel. It’s fine for slow fire: That skeletal support thing helps your body to keep you steady on target ... for that one shot. However, the extreme muzzle rise and the shoulder being pushed back by recoil greatly slow your recovery time getting back on target if another shot is needed ASAP.

Some AR-15 shooters put their support hand’s palm under the fore-end with their fingers open, trusting the light recoil of the .223 caliber/5.56mm cartridge not to jump the gun out of their hand. This can

actually work in rapid fire, but in a tactical situation when, for example, you are running to cover, if a wall or doorframe hits that gun’s barrel, the weapon is going to leave your hand if you are grasping so. *No bueno.*

Even with a .223 — and certainly with anything more powerful — you’ll be better off with a firm grasp on the fore-end, and for that matter, back at the trigger-pulling hand too.

With light-kicking long guns, many shooters use a grasp on the fore-end in which little but the thumb and forefinger are actually stabilizing. With the recoil of a truly high-powered rifle or a shotgun with full-power loads, a grasp like that can move the gun enough that you have to re-grasp and can even literally make the gun jump out of the forward hand. With an autoloading firearm, this can be dangerous as hell. Think about it. Your trigger finger is already on the trigger from the last shot; the front of the gun jumps away from you and starts to drop down; and the natural reflex is to tighten your hand. BOOM! You’ve just shot yourself in the foot.

“But, on TV I’ve seen clay bird shooters hold their shotguns with thumb and forefinger!” Yes, and they were shooting super-light “trap loads” with very mild recoil and expelling 700 to 900 foot-pounds of energy. A standard full-power (“Express”) load of 00 buckshot will be exerting more like 1,700 foot-pounds, and a three-inch Magnum shell like you’d use for duck hunting is going to be closer to 2,400 foot-pounds. Think that might make a difference in the



Massad Ayoob

“kick?” Newton’s Law tells us there will be equal and opposite force generated by mass in motion ...

For serious business with serious firearms, I would strongly recommend a full-power grasp of the fore-end of rifle or shotgun, and I see no reason not to apply just as much strength with the firing hand, making sure that the trigger finger is operating separately from other muscle groups.

With rifle or shotgun, the shooter is wise to pull the gun butt tightly into the shoulder. If it comes even a fraction of an inch off — as in a typical “flinch” in anticipation of the recoil — the butt gets sort of a “running start” and will smack your shoulder almost as if an enemy soldier has struck you with a butt-stroke from *his* rifle. If the butt is in tight to the shoulder, it’s as if you and the firearm are moved back together, and much of the recoil impulse feels as if it has gone through you harmlessly and passed into the air behind you.

Remember, recoil is colloquially called “kick.” No one likes to get kicked. Having been “kicked” somewhere between uncomfortably and downright painfully before, when you fire a really important shot your body anticipates the pain and either pulls itself away or pushes itself at the moment of the shot. Either the rear-



ward cringe or the forward-pushing anticipation will take the hit's point of impact away from its intended point of aim. This will either result in a miss (you didn't hit the target at all) or a bad hit (you didn't hit the target where it needed to be hit).

Let's come back to that critical support hand on a long gun, the forward hand. With the rifle in particular, there are two to three forward hand placements you might want to have in your repertoire of shooting skills.

In the accompanying photos you'll see a composite image of three forward hand positions, with an AR-15 rifle using an extended MagPul 30-round magazine. Each has a place and a purpose.

From top to bottom, notice the extremely forward hand grasping the front part of the rifle stock in what is called a "C-Clamp" position. The forward hand being extended allows a faster transition between multiple targets or an efficient following of a moving target. Its strength is that it can move the gun muzzle, the "business end" of the gun if you will, more rapidly. If the elbow is locked, in what I call a "Rifle Isosceles" stance, it allows a very stable hold, but for most people that hold can only be maintained for a few seconds before the tremors set in. Back when I shot informal "turkey shoot" matches with hunting rifles shot from standing "off-hand" on deer silhouette targets, I won a lot of frozen Butterball turkeys shooting a .308 that way, but I always got the shot off in three to five seconds on the winning days.

Bring the forward hand back to midway on the fore-end and you have the classic grasp of a working (or fighting) rifle. It is useful for all around shooting and is considered the standard, default grasp for rifle or shotgun. If I recall correctly, every animal or bird I ever shot in the game field was shot from this position.

If the long gun has an extended magazine, grasping it on either the



*Each of these fore-end grasping methods has their own purpose(s).*

*From top, with AR-15: C-Clamp, traditional, and hard grip on magazine well with upper arm level with chest.*

magazine well or the actual magazine with a sharply bent forward elbow gives greater strength to the support arm, and can be a Godsend to those of us whose upper limbs don't resemble Arnold Schwarzenegger's at the height of his bodybuilding career. It allows the upper skeleto-muscular structure of the human body to hold the extended weight of a long gun for a considerable period of time without

fatigue or tremor. If you know the deer is about to come out of cover, or if you have to hold a dangerous criminal at gunpoint for the often-stated eleven-minute average response time for police after a 9-1-1 call — trust me, this will work better. The forward arm extended for that long most certainly will be sub-optimal.

Different tools for different tasks is the rule invoked here.





*Here is how author suggests holding double-barrel shotgun  
(a classic old Crescent Arms) with full power  
12-gauge ammo. Note firm grasp of forward hand ...*



*... by contrast, this delicate hold of the fore-end would  
give control only with light-kicking "trap loads."*

## Grasp and stance

We must not only consider grasp (how our hands are holding the firearm), but stance (the posture in which our body, the firing platform, stands). A perfect grasp combined with careful sighting and an excellent press on the trigger may give us the good hit we desired for the first shot, but

if it takes the gun far off target or the body off balance for the second shot, that follow-up round will very likely not go where we intended.

For grasp, I would emphatically urge a hard grip on the gun. Swinging on a running deer in a thicket, you don't want your gun knocked off target, or even out of your hand, when

the gun barrel hits a tree. In a fight, where the opponent gets the first move — and we all know action beats reaction — we don't want that opponent to be pulling the gun from our hand.

Whether actually shooting or preparing to shoot, if you're "shooting for blood" — meat for the table, or perhaps your very survival, depending on the circumstances — you want your stance to bring body weight aggressively forward "into the gun." This will help you bring the rifle or shotgun back on target instantly for follow-up shots (and help you keep a submachine gun on target for the whole burst of fire, for that matter) and will keep the recoil from destabilizing you backwards at the worst possible time. Flex your forward leg sharply at the knee, and — an often-missed "secret of the gun ninjas" — let your rear leg be flexed slightly and exerting pressure, digging your rear foot into the ground. This seems to "springload" the body and help keep the gun on target if very fast follow-up shots need to be delivered.

Among other things, this allows you to stay in position to observe the reaction to your shot. In 1987, I had to fire a shot downward from a hilltop into a Greater Oryx in what is now Namibia. My rifle was a Steyr ST in .375 Magnum caliber, with particularly brutal recoil due to the pitch of its stock, yet the forward stance didn't move me too far back to see the bullet strike that huge animal between its shoulder blades, breaking its spine. That sort of feedback is absolutely critical, whether "shooting for blood" means hunting (as it did for me) or fighting for your life (which could happen to any of us).

## Handguns

While I teach the use of handguns, rifles, shotguns, and fully-automatic weapons as my primary job since 1972, most of that work is in the area of pistols and revolvers, the guns





*Trigger finger “in register” on the frame of a Smith & Wesson CSX 9mm pistol*

most commonly used by cop and armed citizen alike in self-defense. I’ve been able to work with a great many of the past and current masters of the handgun, and here’s what I’ve learned from all of that.

Grip the gun *hard*. I have always taught a firm crush grip. In days of yore, great combat masters like Bill Jordan taught the tight grip, as did Rex Applegate who called it “convulsive grip,” as did Col. Charles Askins, Jr. who recommended a grip “that would crush granite.” Look up those names to get an idea where the advice comes from.

If anyone tells you, “Hold your sidearm with 40 percent strength with the firing hand and 60 percent strength with your support hand,” feel free to tell them, “The 1980s called and they want their techniques back.” The “hard hold” is recommended by such great masters today as Bill Rogers, multi-time world champion Rob Leatham (who four-and-a-half decades ago popularized the 60/40 thing), and many more. The 100 percent grip strength exertion helps stabilize the gun against both recoil and

a trigger pull with more pounds of weight than the handgun itself.

Whatever handgun you have, grasp it with the web of your hand as high as you can get it: tight into the grip-tang of a semi-automatic, and up to the upper edge of the “horn” at the back of a revolver. This does two good things. First, it lowers the bore axis and thus gives your hand more leverage to reduce muzzle flip when the shot is fired. Secondly, modern guns were designed to be held this way as the trigger is pressed straight to the rear. If your hand is too low on the grip frame, that rearward trigger pull will dip the muzzle downward, resulting in a lower hit than you intended.

### Fine points

Let’s look at something as supposedly simple as thumb placement. When Guy Savage, head of the Sabre Defence company, asked me to design Massad Ayoob Signature Model AR-15s I included in the specifications an ambidextrous thumb safety. It was because I knew most people don’t read owner’s manuals and even the right-handed shooters who bought

the rifle might have to fire it from their left shoulder. Some years ago for the Wilson Combat Channel on YouTube, I explained the four different thumb positions possible when firing a pistol: [youtube.com/watch?v=XVvUHSFdHK4](https://www.youtube.com/watch?v=XVvUHSFdHK4). It depends on what you are doing with the gun.

### When you’re *not* firing

The gun is seen at law as a lethal weapon, for good reason. Just because you’re not shooting, or think it’s empty, don’t handle it as if it were a tennis racquet or something. Tennis racquets don’t project death with a touch of an index finger.

If you have a gun in hand, treat it as if it is loaded. It’s called by some the “Laser Rule.” After the first Star Wars movie came out, I told students to treat it as if it was a light saber: Anything it crossed could be cut in half.

Alone in the woods, it’s probably fine to just hold it down in one hand at its balance point. But remember that its muzzle is the part that sends out the killing shot, and don’t let it cross anything you aren’t prepared to kill or destroy ... and *never let your finger be inside the trigger guard unless and until you are in the very act of intentionally firing a shot!*

If the gun is in anything like a firing grasp, the trigger finger should be *indexed* on some part of the fire-arm that is both palpably and visually away from the trigger area.

When holding any firearm in a “ready to fire” position, it’s always a good idea to have a “felt index point” upon which that finger can safely rest. We call it “keeping the trigger finger in register.” Some modern semi-automatic pistols actually have a checkered or roughened spot on the frame expressly designed for the index finger to find. (Please *don’t* use the front of the trigger guard as a register point! The reason is that hands tighten under stress and this position puts your finger dead in line



with your trigger, so a slip-and-fall, a bump, or a startle response can snap that finger right back into the trigger hard enough to cause an unintended discharge.) In register, the finger should be on the gun's frame or receiver safely *above* the trigger.

When carrying a handgun, the best place to have it is in your holster. You have a potentially dangerous situation? When your hand is on the holstered weapon, you have a "cheat code" for quick draw. After decades of teaching handgun disarming and its corollary science of handgun retention, I can say with some authority that this is the most secure way to keep an assailant from grabbing your gun, and one of your hands is still free to fend off a disarming attempt.

Should you trip and fall, instinct will tell you to reach out with both hands to save yourself, and the holster will keep your gun from presenting one more problem.

With a long gun, holding it down at arm's length at your side with the balance point in your palm is reasonably safe ... when you're alone. Be sure it doesn't point at a hunting partner in front of you. Remember the physiologist's axiom, "Where the head goes, the body follows." If you turn suddenly, you don't want your gun muzzle to cross a fellow shooter or hunting partner.

A rifle or shotgun on a sling? The currently popular tactical slings that hold the long gun in front of you tend to bring the muzzle across your

feet. Military marching position with the sling over your shoulder and the muzzle up? Take care: The gun can shift and cause the muzzle to point at the head of a hunting partner behind you. African carry, the muzzle down slung from your non-gun-hand side shoulder? I always liked that better — comfortable, and very fast into firing position, but I never used it when my hunting partner or guide was in front of me because it caused the "business end" to be pointed at their lower legs. Not something you do with people you like and want to be safe. Obviously, you don't want that type of long gun carry when going through deep snow drifts, either, because the muzzle could get plugged.

## The bottom line

They don't call these things "deadly weapons" for nothing. We who carry them take on a great responsibility. That responsibility is to ourselves, and to others.

People think the phrase "With great power comes great responsibility" comes from a Spiderman comic strip, uttered by Spiderman's wise Uncle Ben. The fact is, it was spoken long before Marvel Comics by Franklin Delano Roosevelt, explaining why he was sending arms to Great Britain before World War II, and I wouldn't be surprised if it was stated long before by the great sages of the past. Whoever said it, they had it only half right.

With great power must indeed come great responsibility, because power without responsibility often becomes unacceptable tyranny. But we must never forget the corollary: *Responsibility without the ability to fulfill that responsibility is the very definition of futility!*

This, in the end, is why free people must have guns. And why we must be especially careful in how we handle and use them. Δ



*This classic marksman's "off-hand" stance will give good accuracy in slow fire, but poor recoil control and slow recovery for subsequent shots, even with mild 5.56mm/.223-caliber recoil in this AR-15.*



*For rapid fire or moving or multiple targets, author prefers this stance with AR-15: "C-Clamp" grasp of fore-end, body weight aggressively forward "into the rifle."*



# Letters

We welcome readers' letters. We may use your letter in whole or in part, depending on space. Please send your letter to [letters@backwoodshome.com](mailto:letters@backwoodshome.com). — **The Editors**

## Master index of articles

*I've been a Backwoods Home subscriber since January 2011 starting with Issue #127. I have learned so much and have found so much value in the articles as we built our new homestead and rural lifestyle. Many times when I am beginning a new project, looking for a recipe, or trying to care for an animal, and I remember that I had read about that very topic in a past issue of the magazine. But digging through all those back issues to find the article is frustrating for me when I need to have the information ASAP. I know every issue has a table of contents, but is there a "master index" available that lists subject matter and the corresponding issue(s) it can be found in? I'd much rather rely on the trusted articles in BHM than do an internet search and wade through countless pages of irrelevant content and ads.*

**Sean**  
West Virginia

If you'd like a master index, send us an email to [customer-service@backwoodshome.com](mailto:customer-service@backwoodshome.com) and we'll email it back to you. It's free. We do not, however, have a paper copy. — **Sam**

## Thanks Cousin Sam

*Enclosed please find my renewal for both BHM and SR along with a book order. I am proud to support these family magazines and I mean family on two fronts. One, a magazine owned and overseen by the Duffy family, but also a magazine that makes me feel as though I'm reading*

*articles by "Aunt" Jackie, "Uncle" John Silveira, "Cousins" Wren and Jaeger, "In-laws" Patrice and Don, "Aunt and Uncle" Ilene and Dave, and of course the great artist "Grandpa" Don. The corporate conglomerate magazine articles are so dry and impersonal and your articles feel more like a conversation at a family picnic. Keep up the great work "Cousin" Sam.*

*Also have you ever thought about creating a book just of articles written by Jackie? I'd be first in line.*

**Matt H.**  
Texarkana, Texas

We have several by her: Starting Over, Growing and Canning Your Own Food, Jackie Clay's Pantry Cookbook, and her series of eight Ask Jackie books. You can find all of them on the order form. — **Cousin Sam**

## Thanks for the anthologies

*I want to thank you for making the anthologies available. I have all of them and will continue waiting patiently for more to be available. In the interim, having the anthologies has made my single copies available to my local library's patrons.*

*I still treasure having met Dave and Lenie at the one and only Mother Earth News Fair held in Vermont. It was the highlight of my year.*

**Patti DeLang**  
Cambridge, Vermont

## When the lights go out

*We had an ice/snowstorm some years ago in Massachusetts that put the electricity out for seven-plus days.*

*We solved the refrigerator problem easily. We used an aluminum roasting pan filled with nature's bounty of ice and snow and placed it on the top shelf of the fridge. We also used a small aluminum container for the freezer unit. Voilà! An "ice box!"*

*Gallon storage bags packed with ice and snow were used in our camp-*

*ing coolers. The food we suspected would spoil was made into an olio stew and kept in the ice box. On hand were plenty of camping food pouches and MREs.*

*Our Vermont Castings wood stove kept us cozy. Each year my wife and I stack more than two cords of seasoned wood. We were the only unit in our condominium with a chimney, light, food, warmth, and a Glock 22, which fortunately, we never needed.*

*Amazing how many of the residents and college students couldn't figure out that their iPhones could be charged using their vehicles. They could drive short distances to working gasoline stations.*

**Charles LaPiene**  
Granby, Massachusetts

## Jim Capossela's cabinet

*I found an article in Issue #197, July/Aug/Sept 2024 by Jim Capossela. It was a step by step DIY for a cabinet/bookshelf. With a few of my own twists, I turned it into a display case for my diecast NASCAR cars. His article was very helpful. I just wanted to share my version of his cabinet ... My step-daughter has made it a tradition to give me cars for Christmas and the location I was keeping them was full. She really wanted me to display them nicely, not just stacked up on top of the gun cabinet.*

**Gordon Haley**





# *My Back Porch*

## Getting more patriotic with age

I've gotten more patriotic in my old age. The other day I put new license plates on my car that not only have the word "veteran" stamped below the plate number but bear the logo of the United States Army. I decided it was time to brag about having served three years in the Army.

Unfortunately, I was not a model soldier. I got an honorable discharge in 1969 but it was not accompanied by the Good Conduct Medal, which is almost automatic for military service. A couple of Article 15s for being an insubordinate jerk marred my record. It was only in retrospect, years after I left the Army, that I realized how valuable my Army training and experience were, and how patient the Army actually was with me.

Right after boot camp, the Army sent me to the Defense Information School (DINFOS), a multi-service school that trained me to be an Information Specialist (71Q20), the equivalent of a civilian journalist. They then gave me opportunities to interview service members ranging from wounded soldiers to generals and write articles for both military and civilian newspapers. My last commander, who once threatened to bust me in rank if I continued socially associating off-duty with an officer, nevertheless got me my first civilian newspaper job upon discharge. By the time my three-year enlistment was up I had progressed from a stumbling wannabe writer with an attitude to a confident and effective news reporter.

I was never in combat, even though I served at the height of the Vietnam Conflict from 1966 to 1969. Several times I submitted the paperwork to volunteer for Vietnam, but it was out of a desire to get a "war experience," as my hero Ernest Hemingway called it, not because I was

patriotic. Instead of sending me, they sent my brother Jim, a U.S. Marine, twice. Jim had his own attitude problems and "volunteered" for a second tour in Vietnam to evade a court-martial following a barroom brawl.

## 3rd Armored Division

My most memorable duty station was with 3rd Armored Division at Ayers Kaserne in Kirch-Goens, Germany, just outside of Frankfurt. It was nicknamed "The Rock" for its reputation as an isolated and difficult assignment. I was sent there, in fact, by a ticked-off lieutenant with whom I had a disagreement on my first day in Germany. (I didn't realize he had influence over where I'd be stationed.) But it turned out to be an ideal learning experience for me.

The 3rd Armored Division was known as the "Spearhead" Division, a designation earned in World War II from its many battle engagements in which it led the attack. The primary mission of "The Rock" was to hold off Soviet tanks long enough so Headquarters in Frankfurt, where the ticked-off lieutenant was located, could escape. The Soviets, of course, never attacked, presumably because we had better tanks and guys like me with an attitude.

We trained often with the German Bundeswehr in simulated war games at the Grafenwoehr Training Area, a huge 90-square-mile area suitable for live tank and artillery fire. I took photos and wrote articles. Once, while I was out with my company commander observing a war game from a hillside, the captain opened the Jeep's hood and touched wires to the battery. It set off a simulated nuclear explosion that startled the crap out of me. I looked out and watched the mushroom cloud hanging over the battlefield as the tankers closed their hatches and the infantry took cover.

Sometimes they'd let me interrupt a small area of the games and set up a photo. Once, I lay in a foxhole and had a tank drive over me so I could only see the main gun over its tracks. The photo and story appeared on the front page of the *Stars and Stripes* Europe, the main military newspaper in Germany. The commanding general of 3rd Armored Division was thrilled, and I was pretty jazzed at how well my initiative had paid off.

Another time, my unit was being trained to jump out of a hovering helicopter and set up a firing position. A lot of guys from our division were being transferred to Vietnam so they wanted us prepared. I suggested they let me jump out first with my camera at the ready so I could take a photo of the other guys jumping over me with the helicopter in the background. So as soon as the helicopter touched down and the door opened, I leaped out. Unfortunately, I hit my head on the top of the doorway, dropped the camera, and fell to the ground disoriented. The other guys were laughing as they jumped over me. I didn't get a photo but also didn't get badly injured since I was



*I learned Oregon veterans could get one of several VA license plates when I was renewing my car registration.*





*I had my own darkroom to develop photos when I served with 3rd Armored Division in Kirch-Goens, Germany.*

wearing my steel pot over my helmet liner. It was a good training lesson on how not to jump out of a helicopter.

We were all basically still kids having some fun while training. Once, several of us were trying to see how hard we could push an M114 Reconnaissance Carrier, a fast fully tracked vehicle designed to scout out the enemy in front of the tanks. It had a .50-caliber machine gun, a 7.62mm M60 machine gun, could climb steep grades, go through muddy fields and even rivers because it was also amphibious, and “drive over anything.” Never tell kids a vehicle can drive over anything because we managed to “high center” it on a very pointy pile of rubble so it had to be towed off.

## Fort Devens and Cutler Army Hospital

I was eventually transferred back home to Fort Devens, Massachusetts after my sister Maureen was killed in a civilian plane crash. It was called a hardship transfer because my mom was ill and suddenly alone.

Cutler Army Hospital at Fort Devens was a primary receiving point for wounded soldiers from the New England area to come home from Vietnam. Once soldiers had survived initial trauma surgeries, then stabilized at major medical centers, they were transferred to regional hospitals like Cutler to recover closer to their families. One of my jobs was to interview them and write their individual stories for their hometown newspapers.

It was a rewarding job for me because I got to write stories that made the soldiers shine like the heroes they were in their hometown newspapers. And I was good at churning out Home Town News Reports (HTNRs). There were a lot of wounded to write about, so I developed a quick system of interviewing and writing so I could get as many HTNRs done in a day as possible.

One day, while rushing through my interview check sheet, the soldier was silent after I asked him where he

was wounded. When I looked up from the check sheet his hand was tapping the flat blankets where his legs should have been. I had not noticed he had no legs. I was shocked and ashamed. Here was a kid just like me who was about to go through the rest of his life with no legs, and I was in such a big hurry to be efficient I had not even noticed. I’ve never forgotten that lesson.

## Return to civilian life

At my discharge the local newspaper, the *Lowell Sun*, hired me on the recommendation of my last military boss, Colonel Charles de Smet, and the *Sun* made me their bureau chief in Ayer, the town adjacent to Fort Devens. My first major story was to write about a murder that took place in the Fort Devens stockade, a story so embarrassing to the military that Colonel de Smet revoked my on-base privileges to limit my access to sources. He was taking heat from his commanding general, and he had a lot of experience with how effective I had become as a news reporter.

I went on to have a good career as a reporter, working for several daily newspapers and enjoying it. After changing careers in my early 30s to make more money writing for the Department of Defense (DOD), in my 40s I turned to having my own business and writing for this magazine, which has been the most satisfying job I’ve ever had.

About a year ago a lieutenant, who served with the 3rd Armored Division in Germany many years after I did, sent me a letter with a metal placard that sums up the unit nicely. You can read it for yourself in the photo below. I keep it on the bookshelf next to my desk, but I misplaced the lieutenant’s letter so if he is reading this perhaps he can contact me again so I can thank him.



I owe a lot to the U.S. Army with its excellent training and patience with me during the three years I served. I understand the Army has even more opportunities today. So thank you United States Army. I’m proud to have served and apologize for not having a good enough attitude to have gotten that Good Conduct Medal. It’s my honor to display your license plate on my car. — *Dave Duffy*



# The Last Word

The man who believed  
“... all men are created equal ...”

One of the most interesting people in American history is Robert Carter III, but it's likely you've never heard of him. He was born into a Southern slave-owning family in 1728, and was a grandson of Robert “King” Carter. King Carter owned over 300,000 acres of land and more than 3,000 slaves, and was the wealthiest man and one of the most politically powerful of all men in the Virginia colony.

Robert Carter III was born on King Carter's plantation and was given his first slave, a young girl, when he was three months old. When he turned 21, both his father and grandfather were long dead, and since he had reached his majority, he inherited some 65,000 acres of land and over 100 slaves. It was at this time in his life that he travelled to England to study law. He returned to Virginia in 1751.

In 1754, he married Frances Tasker, a daughter of Benjamin Tasker, the 21st Proprietary Governor of Maryland and at one time the mayor of Annapolis. They would have 17 children: 13 daughters and 4 sons. Eight of their daughters and all four of their sons survived to adulthood.

Early on, Carter was known among his peers to be humane to his slaves. He avoided selling them, allowed them to marry, refused to break up families, and even inoculated them against smallpox.

In 1777, he suffered a severe illness that nearly killed him. Following this illness, he experienced a religious awakening that led him to question the morality of slavery. He hoped to pass his new antislavery sentiments on to his children, especially his sons. However, his eldest son, Benjamin, died when he was 23, and his second son, Robert, died in his early 30s. When his two youngest sons, John and George, were old enough, he sent them to a Baptist school in Rhode Island where he hoped they would be educated far from the taint and influence of slavery. But it didn't work. When the youngest, George, became an adult, he clearly did *not* share his father's antislavery

## Emancipation vs Manumission

Emancipation is the freeing of slaves by government action. Manumission is when an individual frees his own slaves. For example, Lincoln emancipated slaves with the *Emancipation Proclamation*; Robert Carter III manumitted his own slaves voluntarily.



Virginia Historical Society

*This is the only known likeness of Robert Carter III. It was painted in 1749 or 1750 by the artist Thomas Hudson.*

sentiments. After inheriting some 3,400 acres of land, and against his father's wishes, he began buying slaves to build and maintain his own plantation, which he called Oatlands Plantation. (Carter would not give George any slaves.)

Carter did give his daughter Anne some slaves as part of her dowry when she married a man named John Peck. Those slaves were meant to remain in her possession. But against Carter's wishes, Peck sold them in 1785, before moving his family north. By this time, Carter's antislavery sympathies were clear to his family and he refused to include either slaves or land as part of any of his other daughters' dowries.

Carter had been born into the Anglican Church, which was both the established Church of England and the church of the social elites in the Virginia colony. But after his illness he converted to evangelical Christianity and allied himself with the Baptists. From then on, he would only attend churches that welcomed both white and black people.

Then in 1787, after 33 years of marriage, his wife Frances died. He was 59, and he would never remarry.

A few years later in 1791, he acted on his moral convictions and filed a “Deed of Gift” at the Westmoreland County courthouse. By this time, he owned over 500 slaves, and this document made it legal for him to begin freeing *all* of them. But, by law, he was only allowed to do



it gradually, so he did so from 1791 to 1803. This manumission of slaves is the largest voluntary freeing of slaves by an individual in United States history, and the number of souls that were freed would not be surpassed until the *Emancipation Proclamation* during the Civil War.

But Carter didn't just turn the people he freed out into the cold, he *hired* back many of them as workers and paid them *wages*. He also offered many of them land leases. Last, he also did something very few slave owners ever did: He educated them.

But these acts didn't come without resistance. The nation was still decades from the Civil War and the *Thirteenth Amendment* (1865) to the *Constitution* that would make slavery forever illegal in the United States. So, members of his family, including sons-in-law, along with many of his fellow planters tried unsuccessfully to stop him with lawsuits. Those in his family were expecting to one day inherit these enslaved men, women, and children, while his neighbors were afraid that such a large manumission might foment a rebellion among their own slaves. Eventually, those who opposed Carter drove him from his home with threats that they would tar and feather him, and he spent the rest of his life living in Baltimore, Maryland, where he would die in 1804.

How does Carter's freeing of so many slaves compare to what many of the Founders of our nation did with their own slaves?

George Washington, our first president and so-called "Father of Our Country," inherited his first slaves when he was 11. By the time he died he owned 317. As an adult, he wanted to end the practice of slavery, but never freed even one in his own lifetime. However, he did provide for them to be freed in his will, with the stipulation this would only happen after the death of his wife, Martha. (Martha, knowing this, was afraid some of the slaves, aware of this stipulation, might kill her themselves. So, she gave her husband's slaves their freedom a year after his death.)

Thomas Jefferson, third president and author of the *Declaration of Independence* (which includes the phrase, "... all men are created equal ..."), freed only 10 people throughout his lifetime: two while he was alive, five others in his will, and three who were "allowed to leave" his plantation. These included the four surviving biracial children he had fathered with one of his slaves, Sally Hemings, along with Sally herself. The rest of the 600 or so slaves he owned were sold upon his death to settle his debts.

James Madison, fourth president of the United States, and often called the "Father of the *Constitution*" for having

Robert Carter III knew many of the Founders including future presidents George Washington, Thomas Jefferson, James Madison, and James Monroe.

For those interested in genealogy, Robert Carter III and thirty-ninth president Jimmy Carter are believed by some to be third cousins, seven times removed.

helped draft and promote both the *Constitution* and *Bill of Rights*, owned more than 100 slaves. He neither freed any during his lifetime, nor did he free any in his will.

James Monroe, fifth president of the United States, owned more than 200 slaves, but freed just one. All of his other slaves were willed to his wife.

Another of the Founders, and one of my favorites, was a plantation owner and a friend of Thomas Jefferson. His name was George Mason. Mason was responsible for the *Virginia Declaration of Rights*, which directly inspired our *Bill of Rights*. Also, much of the wording Jefferson used when he drafted the *Declaration of Independence* came directly from Mason. Mason publicly condemned the slave trade and called it "slow poison." He said, "Every master of slaves is born a petty tyrant. They bring the judgment of heaven on a Country." By the time of his death, he had over 100 slaves at his plantation, Gunston Hall. And though he adamantly opposed the slave trade, and vowed to rather cut his hand than sign the *Constitution* if it meant perpetuating it, he did *not* free any of his own slaves, either during his lifetime or in his will.

It's also worth noting that of the 56 signers of the *Declaration of Independence*, 41 owned slaves.

What can we make of this? These weren't "bad" men, but despite their philosophical and political beliefs, they were still men of their time, and slavery was an institution in their time. It's not only difficult, but probably not fair to judge people from other generations against the standards of our own time. Nonetheless, we do it. And future generations are going to judge us against the standards of their times, and we likely won't fare well.

I'm torn. I admire those men for the country they founded and the documents they created that have helped keep this nation together. Though many of them fell morally short of their own ideals, today the descendants of the slaves they once owned benefit from the documents they created, including the *Declaration of Independence* and the *Constitution* which includes the *Bill of Rights*.

Furthermore, I find it odd, given that Carter freed so many slaves, that his name seems all but forgotten by history. When I learned of who he was, I thought both Republicans and Democrats would have honored him. Nothing. Also, there do not seem to be any monuments, streets, parks, or schools named after him, either. Robert Carter III seems to be gradually slipping from our nation's memory, and this column is my attempt to make sure he's not forgotten. — *John Silveira*



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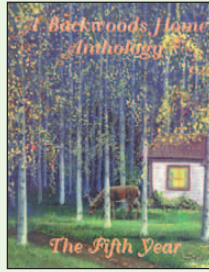
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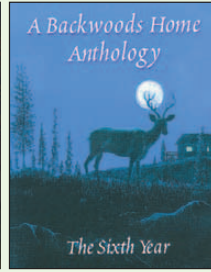
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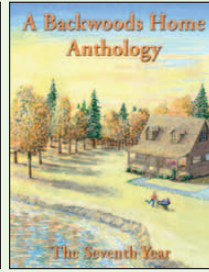
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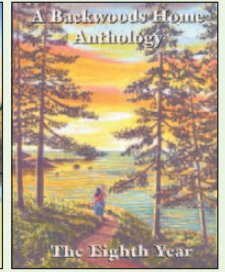
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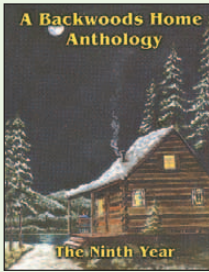
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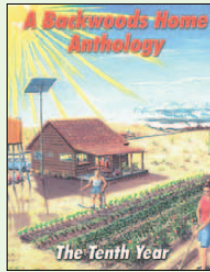
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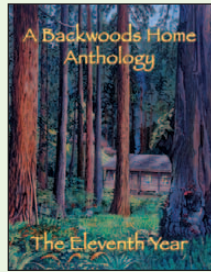
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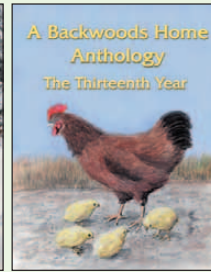
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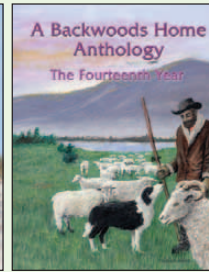
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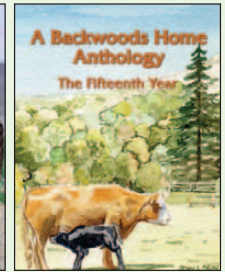
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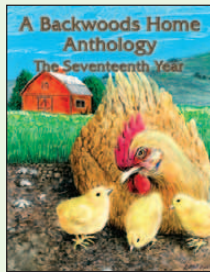
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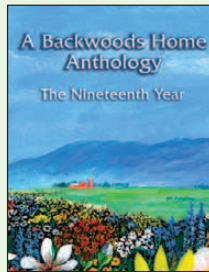
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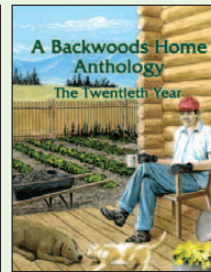
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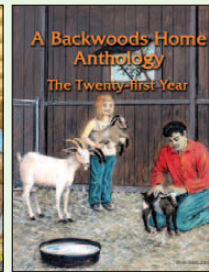
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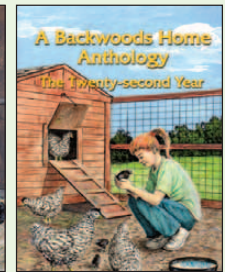
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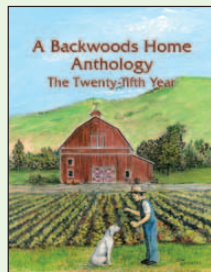
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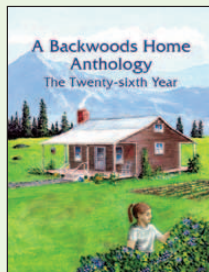
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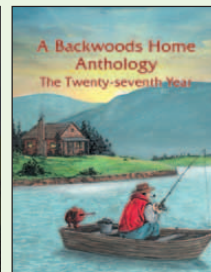
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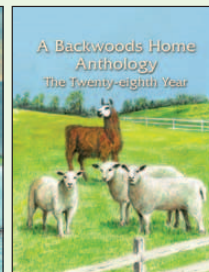
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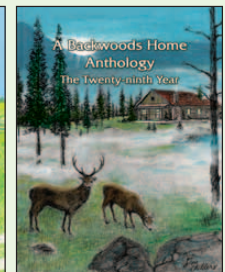
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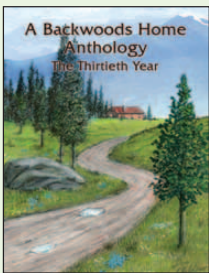
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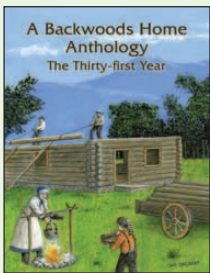
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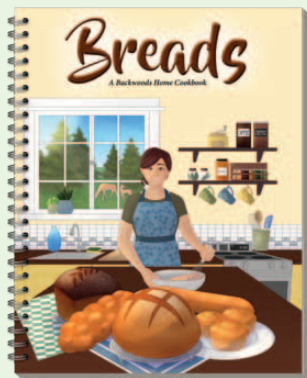
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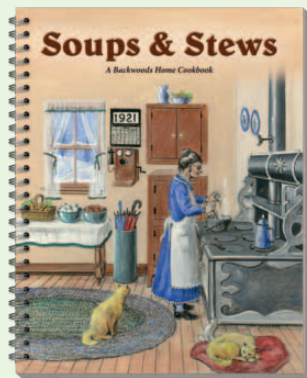
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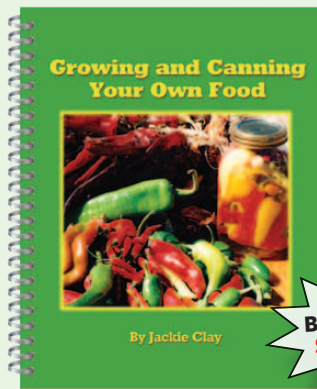
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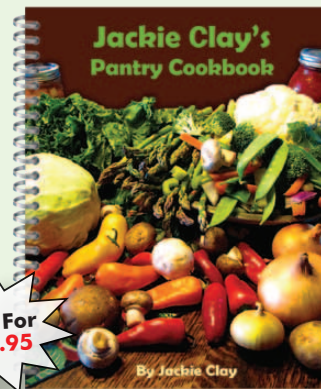
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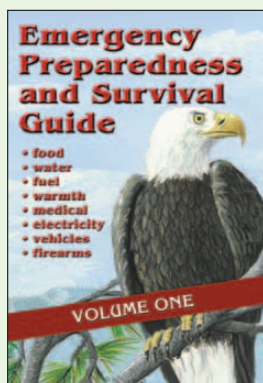
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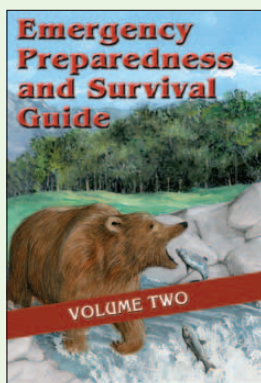
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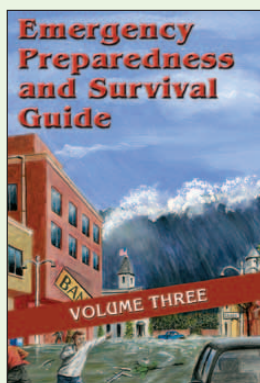
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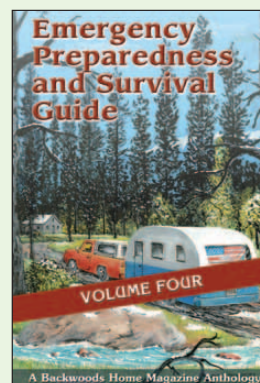
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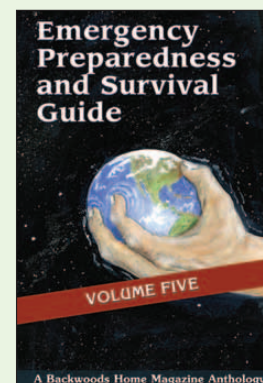
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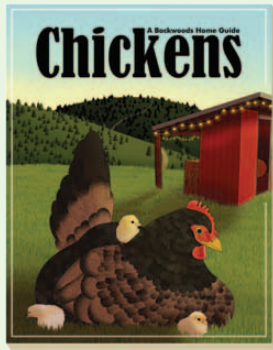


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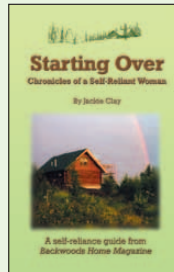
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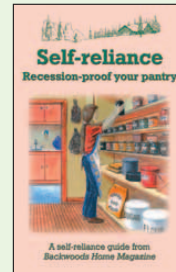
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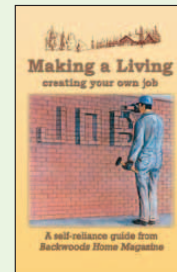
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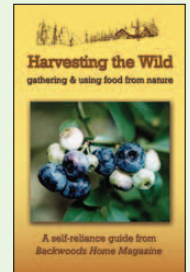
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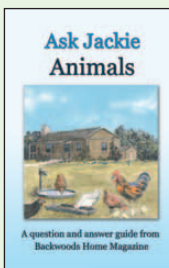
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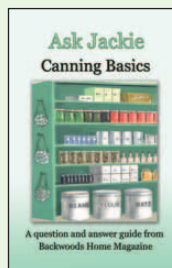
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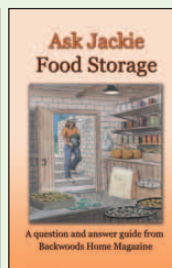
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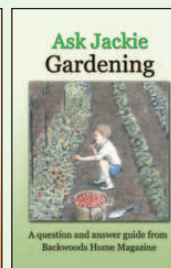
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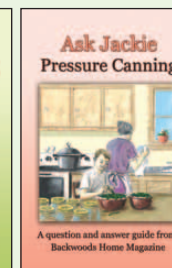
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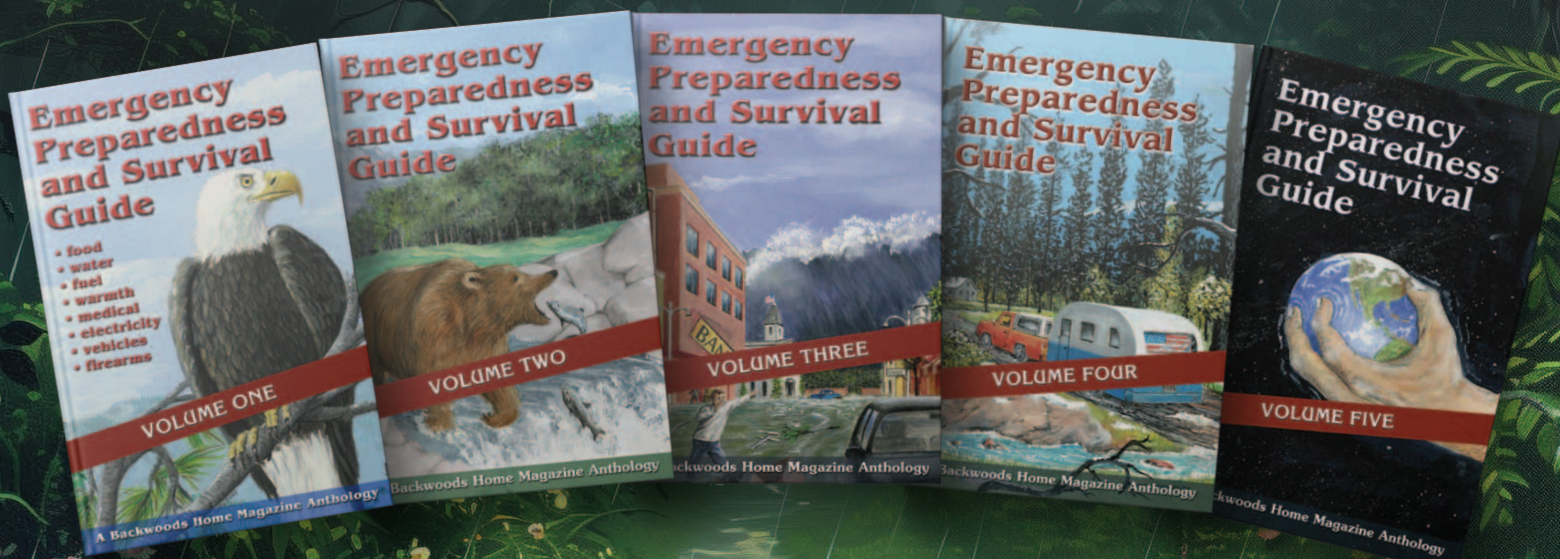
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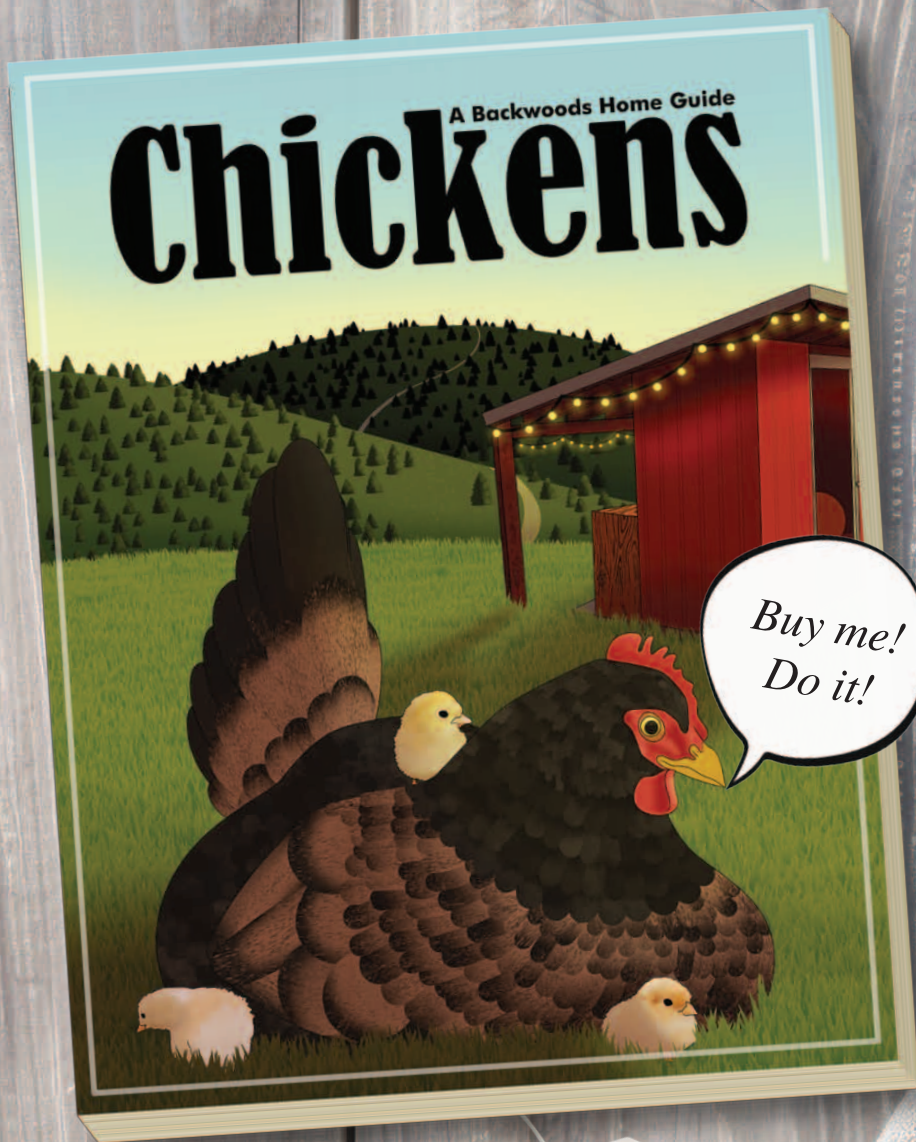
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