The magazine of modern homesteading

COUNTRYSIDE

& Small Stock Journal

Volume 98 • Number 3
May/June 2014

Soil Health Check-Up

Elevated Beds & Containers For Gardeners

Grow a Superfood Goji Berries

Akaushi Cattle
A Healthful Red Meat

Plus:

- Sizing your solar system
- Tips for making herbal teas
- All about patents
- Horses don't share feed

and much, much, more inside...

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So Powerful It Can Jumpstart A Bus… And… It's Half-Price For A Limited Time!

Portable Backup Power That Fits In Your Pocket!

In today's world we all seem to have multiple electronic gadgets (that are extremely important to us and our family) that must be charged over and over.

And there are few things more frustrating than realizing your cell phone, laptop or other mission-critical device is dead (or almost dead) before you head out the door for the day… because… you forgot to charge it the night before.

Hi, Bill Heid, President of Solutions From Science here with some absolutely amazing and exciting news.

Let me explain:

As part of my mission to bring to market the latest and greatest in off-the-grid gear, I literally have to travel around the world. And I do so quite frequently.

That being the case, and because I run several companies, it is a must that I stay in touch with my teams of employees back here in the states. And I don't know what your experience has been but, if you're "off the grid" when traveling like I am, you KNOW that isn't always easy… because…

Charging Your Devices Overseas Can Present A Real Challenge!

For example: In Europe, you'll find two different kinds of plug-ins (one for Britain and another for continental Europe) that are totally incompatible with your American devices. Plus, you'll need a voltage converter, as well.

And in remote places like Belize or Costa Rica, sometimes the power goes in and out with regular frequency. Heck, even the Florida Keys can present power challenges regularly.

Not to mention outages caused by other emergency situations.

Not good. Not good at all when you have several businesses, your family and scores of employees relying on you to keep things moving forward.

So, for the last two years, I have been on a frantic search (literally scouring the globe) looking for a reliable, portable backup power solution. And to be quite frank…

It Has Been Frustrating!

Don't get me wrong. I've found several. But no matter what the manufacturer says, if the unit is light and small, it's underpowered. Or, if the unit is powerful, it's way too heavy and bulky to be practical… that is…

They Just Don't Perform As Described… UNTIL NOW!

Recently, due to a breakthrough in battery technology (which I'll discuss in a bit), I found a personal, portable backup power unit that more than lives up to *every* claim it makes. It's called the…

Pocket Power Plus

This device is truly amazing and very cool.

First of all, it is truly compact. The unit is just a little larger than an iPhone 5.

Second, it's truly powerful. David Fink, our chief electrical engineer at Solutions From Science, jumpstarted his Harley after it had sat for 9 months. If you know anything about old Harleys, you know that's quite a feat.

Third, it's truly portable. The unit comes in a handy carrying case that contains everything you need, zips up completely… and… all told, weighs less than two pounds.

Those things—truly compact, truly powerful and truly portable—were the main criteria I was looking for. But the **Pocket Power Plus** not only met that criteria, it exceeded my expectations more than I ever could've imagined.

Here's what makes this device the most amazing personal, portable backup power system ever developed:

- **It will charge ALL your electronic devices. (With 16 different kinds of adapters, there's no popular electronic gadget this device won't be compatible with. It even has a USB charging port!)**
- It will run ALL your electronic devices, too! (For example, you can run: An iPad for 18 hours. A Kindle for 32 hours. An iPhone for 64 hours. An iPod for 150 hours. Or, you can even use it to DOUBLE your laptop's battery run time!)
- **The unit is small and can literally fit in your shirt or pants pocket!**
- You can jump-start nearly *any* vehicle with the included jumper cables! (We've even jumpstarted a bus!)
- **It's a perfect backup power device for nearly *any* outdoors activities! (It's also great for business travelers… on the ground or in the air.)**
- When plugged into a standard wall outlet, the **Pocket Power Plus** charges in about 5 hours. It can also be charged by your automobile with the included 12 volt DC adapter.
- **The Pocket Power Plus provides peace of mind when you add it to your vehicle's emergency kit!**
- It's nearly bulletproof electrically… and much, much more!

Pretty amazing, don't you agree? And…

Here's What Makes This All Possible!

Earlier I mentioned that there has been a recent breakthrough in battery technology. The breakthrough is an advanced type of battery that evolved from lithium-ion batteries.

It's called a Polymer Lithium-Ion Battery.

These batteries are much more powerful than their predecessors… and… can be shaped to almost any size or design needed. And that's what makes the **Pocket Power Plus** so powerful… yet… so compact and portable.

These batteries are already starting to power the next generation of battery-powered electric vehicles. And get this, these batteries are so powerful, since April 2011…

They Have Been Responsible For Several World Drag Racing Speed Records!

Now I hope you see why I'm so excited about the **Pocket Power Plus.**

Pocket Power Plus Is So Powerful It Can Even Jumpstart A Bus

In any case, by now I'm sure you are wondering how much the **Pocket Power Plus** costs. Well…

Here's Great News For Countryside Readers:

The retail price of the unit is $229.00. However, as a special, limited-time introductory offer, you can get the **Pocket Power Plus** at…

More Than Half-Off… Just $99.97!

Plus, if you order 2 or more **Pocket Power Plus** units, I'll throw in free shipping and handling (which is $15.95 per unit.)

AND... just to ease your mind, I also want you to know that I am shouldering all the risk with our…

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Here's How It Works: Try out the **Pocket Power Plus** under *any* conditions. If it fails to perform as I've described here… or… it breaks or malfunctions in *any* way, just return it to my office and you'll receive a prompt refund of your full purchase price (less shipping and handling). No hassles. No questions asked.

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One last thing: This special, more-than-half-off introductory offer on the **Pocket Power Plus** is only good until our current supply runs out. New units will be sold at the regular retail price of $229.00 each.

COUNTRYSIDE

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Our Philosophy

It's not a single idea, but many ideas and attitudes, including a reverence for nature and a preference for country life; a desire for maximum personal self-reliance and creative leisure; a concern for family nurture and community cohesion; a belief that the primary reward of work should be well-being rather than money; a certain nostalgia for the supposed simplicities of the past and an anxiety about the technological and bureaucratic complexities of the present and the future; and a taste for the plain and functional.

Countryside reflects and supports the simple life, and calls its practitioners homesteaders.

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Pepper plants are transplanted into healthy soil.

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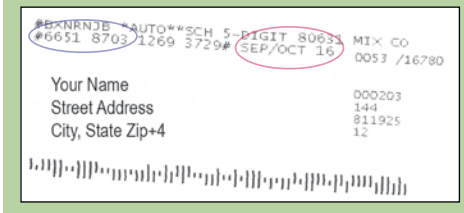

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(We never know when they'll pop up.)

Hiding behind several different made-up names including CBS, United Publishers Services, Publishers Billing Exchange and National Magazine Services, they mail notices similar to the one left, trying to sell subscriptions to Countryside & Small Stock Journal—as well as dozens of other magazines—for exhorbitant prices far above the going rate. In the case of Countryside they offer a two-year renewal for $65.95, while the real price is only $30. • The name and address may change—in March it was White City, OR. • This company is not connected with Countryside Publications, in any way, and has an "F" rating with the Better Business Bureau. • If you receive a notice like this one please ignore it or ask them to remove your name from their mailing list. If you have renewed through them, call 1-775-345-3664 and ask for a complete refund. (They have been charging some people $20 for the "privilege.") • Genuine renewal notices come from us here at the home office at 145 Industrial Dr., Medford, Wisconsin 54451.

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- Build a fieldstone smokehouse
- Start your own business

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- Build a solar food dryer
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- How to choose a grain mill
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- Choose the right knife
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- Getting started with bees
- Stand-alone solar water pumping
- Raising rabbits step-by-step

May/June 2007 Vol. 91/3
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- Choose the best cow for your homestead

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- Keep your bees healthy
- Rearrange your chicken yard for fresh grazing

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- Free & wild winter food
- A tropical greenhouse: at 9,100 feet

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- Shear your own sheep
- Is windpower right for you?

May/June 2008 Vol. 92/3
- The Integrated Homestead *Part 1: Soil Fertility*
- Solar hot water, options for every climate
- Coping with today's economy

July/August 2008 Vol. 92/4
- Tools for the integrated homestead
- The time is right for a family garden!
- Dry your bounty

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- Homestead finance, *how less can be more*
- No plug? No problem! Handy Cordless Tools

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- Swap your lawn for an edible garden
- Standby generator systems: *choosing a personal power plant*

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- The Fall Garden: Time to Plant for Spring
- Going Solar? Start Small with a Pint-Sized Inverter

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- Anyone Can Weld!
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- Meet the Neighbors: *How 3 Homesteaders Built Their Dream Ponds*

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- Composting the Easy Way, *Let Your Hens Do the Work*
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- Solar Panels: Buy or Build?
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Country conversation & feedback

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Brandywine—the river

COUNTRYSIDE: Jeffrey Goss does not think a Mennonite would name a tomato Brandywine?

I've always considered it to be a very appropriate name, since the Brandywine River together with its east and west branches was the very epicenter of the Mennonite settlements in North America from 1683-1783.

The Brandywine drains a large part of that area between Wilmington, Delaware; Philadelphia, Allentown, and Lancaster in Pennsylvania.

Besides the Mennonite, the Pennsylvania Dutch also lived there, so their language did not originally contain the words brandy or wine. But I dare say that most of the early Mennonite settlers could have told you where the Brandywine River was. In that area it is hard to really define the difference between Amish and Mennonite or Amish-Mennonite as so much intermingling has occurred. — *Henry Leid, Kentucky*

Not everyone *wants* a computer

COUNTRYSIDE: I noticed on the reader survey you had quite a few questions on computers and other electronics. I hope you understand that there are still people without Internet access and most of those people live in rural areas. There are also other folks like me who live simpler lives who don't have, nor want, these modern technologies.

Don't think I am an old man who is set in his ways, for I am only 17. I also know other young men without these modern "necessities." Please don't forget about us. — *Isaac Grover*

Don't worry Isaac, we haven't forgotten you and your brethren. We'll stick with a paper magazine for a long time!

At this time the survey results are still being tabulated, but we'll share them as soon as they're available.

Info like the Healthy Chickens Bulletin (ad, left) can be accessed at your nearest library. The folks there will be happy to help you find what you're looking for.

Managing livestock in winter

COUNTRYSIDE: Robyn Scherer's, aricle in Jan/Feb, was excellent—lots of important information. I do, however, take issue with one of her recommendations. While salt and minerals are so important, a salt block is inappropriate for horses. Horses have smooth tongues and cannot get enough salt from a salt block. They will either make their tongues sore or try to fulfill their salt needs by biting off chunks and perhaps misaligning their jaw.

Cows have rough tongues. If you have ever been licked by a cow, you will know just why cows can get their salt needs met by licking a salt block.

Several years ago, I provided only trace mineral loose salt for our horses. After a while the horses stopped eating the TMS and went without. The light finally came on, and I provided both loose TMS and plain salt. A horse friend of mine told me she used ice cream salt for her horses because it is the purest, but our horses would not touch it. So I put out Kosher salt for them along with the loose trace mineral salt. Now they consume moderate amounts of both. Also, the cows get both a trace mineral salt block and a plain salt block. Give them a choice, and they will make the right one.

A great article Robyn. I have read and reread it. Even though we live in north Florida and seldom deal with severe winter conditions, we are planning to move to Kentucky. Then this article will be referred to often. Thanks Robyn. — *Judy Andrew*

Solar water heaters available locally

COUNTRYSIDE: I read COUNTRYSIDE from cover to cover, and would like to comment on the recent article by Joan

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Lardin, "Adventures in Solar Water Heating."

First, I commend you on your diligence to create a sustainable hot water system that does not depend on big oil or fracking or nuclear energy. Please do not take this letter as a criticism, only as informative. You have already designed and built your own system, including a $1,600 solar water heater (!) from China, and therein lies the rub. Other Countryside readers I hope will sit up and take notice. It is not, I repeat, not necessary nor is it sustainable to order products from China for solar energy. Please, please look around you. Go to the web, you will find solar installers in your area and often, as is the case in my solar water heating system, your state will refund half the cost, and you can write off a large amount in federal taxes.

I, too, searched for a solar solution. I spent a few years trying to find an installer who would make it work for our situation, i.e., living in the Northeast mountains on the Massachussetts/Vermont/New York border, where it's pretty cloudy already and then the plane exhaust seems to make it even cloudier. We get virtually no sun in the winter here.

I spent a while talking to installers, several came to my home but still I didn't write a check because I was waiting to learn more and find someone compatible who wouldn't charge us a ton of money and would make sure we got our state and federal write off. We used to heat water with an oil furnace and we heat our home with wood, so you can see how important solar hot water is to us.

Finally, after two summers presenting bicycle repair and soil building workshops at Solarfest in Vermont, I learned enough about solar hot water to know what I wanted to purchase, and then, if by miracle, Garry Tuttle appeared in my life, a wonderful Southern boy from Florida who made everything happen.

Our solar hot water system totaled $9,000 installed with a five-year contract for repairs. We received $4,000 from NYSERDA (New York State) and another $2,000 in tax write offs. The system ultimately cost us under $3,000. Garry would have been happy to just sell me the equipment but I wanted the tax write off and NYSERDA refund.

We bought locally and Garry has become a great friend, moving on to do more solar installs for friends of mine because I took a chance with him. We need to support local industry and local people. Look around you at your fellow Americans. Do you want to continue having neighbors who are making enough to survive in their own homes?

Thank you for buying American made! Go the extra mile and find your solar hot water system right here in our own country. – *Jules Harrell*

Solar tax credits

Countryside: Many farmers could justify getting an alternative energy system, especially with the number of incentive programs available. For example, the federal government is offering a 30% income tax credit to those buying a solar or wind installation for a home or business. This tax credit will be in effect for installations until Dec. 31, 2016. Additional national incentives and available rebates are listed at energy.gov/savings.

Local utility companies offer their own incentive programs. "Biggest thing we are seeing is that every utility company in the country has different incentives," Olinyk says. "Part of what we do is to work with the utility companies for you to find out what incentive programs are available and which ones work best for you."

"We have literally installed solar arrays on farms where the farmer has all of his investment returned to him after one tax cycle. This doesn't happen all of the time, but it does happen." – *Gary Loftus, Publisher,* The Fence Post, *Nebraska*

Propane entrepreneur idea

Countryside: With the rising prices in propane, an entrepreneur would do well to set up self-producing propane systems, using animal manure, for

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the farmers. It could be a lucrative business for those offering the system, as well as an off-grid solution for the farmers. — *via iPhone*

This was sent in mid-February, when propane in western Wisconsin was going for $4.19/gallon, with a 200-gallon limit. Reports of $5/gallon weren't unheard of in Wisconsin.

Why farmers cross the road…

COUNTRYSIDE: We enjoy your magazine and read it cover to cover the very day it arrives. We have learned much from it.

Just a few comments on Ferlita's "annoyances." (Jan/Feb)

My husband and I (ages 75 and 76) have been farmers all our lives — the last 36 years in Wisconsin. We had dairy cattle for 30 years and had to give them up due to illness and age. We now have a small herd of Angus beef cows.

The farmers lost again with the Farm Bill, this time to the food stamp program. The Farm Bill and my tax money also supports the school lunch program. Our insurance is plenty high too.

We have always practiced good land stewardship with strip farming, erosion controls and the building of dams to control water and drainage. Our animals never lived in filth.

As far as traffic, part of our farm was taken to improve a county road. The only time our farm machinery uses it, is when we cross it to get to the 80 acres on the other side.

I'm a Wisconsin farmer and proud of it. — *G. Davis, Wisconsin*

COUNTRYSIDE: In the Jan/Feb 2014 issue you published a letter that had a list of complaints about farmers. I would like to address these issues. First let me state that I don't live on a farm, but in a small town. But I *do* know where my food comes from!

1. Land drainage: I can agree with most to the point, but I would like to know which are "good bugs?" We as humans consider mosquitoes a bad bug, they are a very tasty snack for a swallow or bat.

2. Antibiotics for cattle: This is done in feedlots. They are a prophylactic treatment due to crowded conditions. Cattle could be raised on open range with more space, no need for drugs but the cost of beef would be $15–$20 a pound. We Americans want, and enjoy, a cheap, abundant source of food.

3. Water doesn't belong "just to farmers." I suggest you go upstream. You will find a dam, which then produces a recreation area which most farmers are too busy to use anyway. The irrigation done in Kansas uses very little surface area. They sit on the Ogalala Aquifer which produces most of their irrigation water, as well as for parts of Oklahoma and Texas.

4. "Corn is not a natural food for dogs." Is it the farmers' fault that the dog food producers add corn? I suppose if the farmer didn't raise and supply corn, then these producers would be forced to use something else…perhaps chicken feathers?

(Ed. weird side note: Our yellow lab, who we adopted last spring at the age of four, would go into the nearby corn field and return with an ear of corn – numerous times! He was obviously tearing them off the stalks on purpose. We also caught him eating all of the raspberries within reach – after I [mistakingly?] gave him one to try. Luckily the garden is fenced, or who knows what would have been left. And no, he is certainly not *starving!)*

5. Chickens: Again, people want a plentiful supply of cheap food. Chickens are also raised in confinement, not cages. Only laying hens are in cages.

6. Traffic: If a person can't see a large piece of machinery (combine, tractor) going down the road, do you really think one would see the small slow-moving emblem? Most machinery has rubber tires. They were not put there for diving in fields; they are there for driving on roads. You may be annoyed with farmers moving machinery down the road, but they don't enjoy being there either. Why not leave for work/appointments/or whatever 10 minutes early in the

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spring and fall when you might encounter machinery? If it continues to annoy you, just think, "There goes my food!"

7. I don't find either corn or soybeans inedible. Soybeans are just a newer food. The statement "GMO foods are unsafe," is an unproven theory. There is slight evidence that it could be true, but with all the different GMOs, much more study has to be done before that statement can be made.

8. Farm Bill: There are very, very few farmers that use crop insurance for a living. The vast majority of farmers only use crop insurance as a safety net. You state no one replaces your job if something happens. You would qualify for unemployment, which, by the way, you do not pay any of the premium—your employer does. Also you could qualify for food stamps, which is part of the Farm Bill. The Farm Bill covers many, many things besides crop insurance. If you lose your job, you only lose your source of income. If the farmer loses his crop (too wet for planting, grasshopper infestation, hail storm, drought, too wet at harvest), he loses his farm, machinery, home, vehicles and anything else he owns. Don't you think he *needs* a safety net?

When you sit down for your next meal, what, besides the napkin, didn't originate on a farm or ranch somewhere? You can complain about farmers if you want to, but don't do it with a mouth full of food. – *Ruth, North Dakota*

The latest issue and a "Jerri moment"

COUNTRYSIDE: The last few weeks of my life have been busy. My husband and I have embarked on a self-employment journey that seems to be "uphill all the way" at the moment. I always look forward to receiving my latest issue of COUNTRYSIDE and was thrilled to see it in the mailbox one evening on returning home. Too tired to sit up and read it, I placed it on the kitchen table to enjoy with coffee the next morning.

Faced with another Alabama snowstorm, I was eager to get up, put on a pot of coffee, and share my morning with my friends in **COUNTRYSIDE.** At 6:06 a.m. the power went out. I grabbed an oil lamp, tore a small piece of paper from a used envelope, and headed toward the kitchen. I lit the small roll of paper on the gas flame under the coffee pot (no need to waste a match), lit the lamp with the paper, poured a cup of coffee and sat down for my journey through the magazine.

There is always so much to learn from the submitted letters and articles. I look forward to the regular contributors as well. As I made my way through the pages, I was glad to see another article by Patrice Lewis. I have read and re-read her articles over the years and even passed them along when friends and relatives have mentioned starting a homebased business. As I read on, I thought about the information in the articles and how I could use it… "I'm going solar one of these days, I need some of those batteries when I do." "Great advice on the truck, I don't know what we would do without our F-450." "If I can find one of those 'man lifts' I could paint my house myself, but it will probably take me three *weeks*. This is a big house. And what about the cracks in the wood siding, do I need to caulk?" "Trees. Yes, plant those trees. They help the environment and the economy, and honestly, I don't want to use plastic toilet paper any time soon. Keep that paper wood coming." "What a great idea, for the hospital to buy vegetables from the community. We need more supporters of local farms."

By the time I came to the article by Bernis Ingvaldson on WWOOFing across America, I was dug deep into the magazine, absorbing every word. This story made me wish I was young again. I would love to drop what I'm doing and work my way across America, meeting new people and learning skills along the way. It would have been great if this had been around when I was a young lady, I would not have had so many hands on "oops" moments. It would have been

Can you believe it? The 4-H program is connected to Monsanto through their support and contributions to the Alabama Cooperative Extension…

great to have learned from someone else's experience and get it right the first time on my own.

Then there is Jerri Cook's, "While You Were Celebrating." How can one person get my blood boiling so quickly? I really appreciate her digging into the crevices to bring us the information from a political perspective. And I love her sweet sarcasm. If I wasn't already paranoid about my food and big government's agenda, I would be after reading her articles.

At this point in my reading, everyone else is up, the snow has melted and it's safe to make our way to our office. All of the local schools are closed, but my child has a school day. Since we homeschool, he has to go. I'm the teacher and I say we have school, so we have school. No need to take a day off on a cold and wet day, save the day off for a warm, sunny day on the creek bank.

We get to the office where I check voice mails and emails. At this point, I have an email from our homeschool coordinator with our church affiliate. Yeah, activities! It looks like someone wants to start a 4-H program for our homeschool group. "What a wonderful idea," I think, as I remember 4-H as a child. I quickly click on the web link to learn more. As I meander through the information, requirements and course offerings, I see the sponsor information. This is where "my Jerri moment" as I like to call it, kicks in. *Monsanto!* Can you believe it? The 4-H program is connected to Monsanto through their support and contributions to the Alabama Cooperative Extension as well as a $50,000 grant from the Monsanto Fund, the philanthropic arm of Monsanto Company, in 2008. And in 2013, five $5,000 scholarships were given by the American National CattleWomen Foundation, Inc. and Monsanto. Monsanto even sponsored the 4-H Volunteer Spring Training for 2013. Unfortunately, this is just a few, the list goes on.

What a shame that we encourage our children to participate in agriculture events and group activities such as 4-H without digging deeper into the political arms that support and hold up the organizations. Check out your local Cooperative Extension's website. Key "Monsanto" into their "search" feature and see what kind of dirt you can dig up.

I'd like to close by saying, Thanks, Jerri! Thank you for your endless effort in attempting to show us the truth about our food, big corporations, big government, and political agendas that ultimately affect our freedoms. Thank you for inspiring me to get involved and research every aspect of my family's lives.

Now that I'm calm again, I'm going to try Daniel Strauss' Bean Burrito recipe with eggs for lunch and finish reading my magazine. – *Kimberly, Alabama*

Why do shelters charge?

Countryside: I loved the article by Ferlita in Wisconsin (Jan/Feb 2014 pg. 15). I live in a four-block square of Mt. Ayr, Indiana. The only stores are a gun shop, which opened in 2012, a small post office, a small tutoring/lending library/community room to rent for meetings. Last summer I saw *no* bees or rabbits, although we do have an abundance of loose cats.

I'll be moving to my son's property this spring—three miles from town with no close neighbors. I'm an animal lover, embroiderer, make small quilts and crafts, watch old tv shows and movies, and I have about 50 pen pals; eight are "regulars."

I'm 67 and have taken in unwanted pets on my own for 60 years. Most animal shelters are just businesses. They would rather kill than give an animal a good home for free. One charges $250 and up! – *Susie Smith, Indiana*

Please remember, while some veterinarians generously waive fees and food may be donated, medications, litter, heat, lights, phone and taxes, etc., still have to be paid.

Helpful, free advice—from an attorney

COUNTRYSIDE: This is in reply to Jerri's lawyer article: Great article and writing.

I recently had a restraining order expire against my neighbor—he had been shooting my dogs, killing all manner of birds, including, and not limited to, bluebirds, hawks, finches and more. His excuse in court was unbelievable (there were squirrels in the attic!). Recently he began again with a vengeance. He will come out into the yard and shoot his rifle in the air and over the houses. We live directly in the landing pattern of Atlanta International Airport. I am in the process of filing again with the court to try to put a stop to all this nonsense. I have contacted the free legal sites, who in turn listened to my concern and referred me to an attorney. The attorney was very helpful and gave me an hour of free advice (this was supposed to be 30 minutes free) on how to approach this matter. I was ready and willing to retain the legal service. After reading from the previous restraining order, the attorney advised me to file a continuation of the last order and request the same judge. There are other details too lengthy to mention here. Bottom line. You are absolutely right about those who choose the legal field to help. The legal fee at the office is $265, per hour. These people reached out to me, and gave me the confidence and knowledge to handle this situation pro se. Thank you Jerri Cook. – *S. Thomas, Georgia*

Advice to greenhorns: Get goats

COUNTRYSIDE: This is in reply to the Canadian reader in the Jan/Feb 2014 issue (pg. 9) who wanted to make bread in a crock pot.

Back in the 1970s I got a Rival Crockpot and it came with a recipe book and it had a bread recipe in it. I also sent for the hardcover recipe book, cake and bake pan, and meat rack.

If you're going to get dairy animals, get goats. They are wonderful. They're smaller and easier to care for than cows, and the milk is easier to digest. You will need more than one, as they are social/herd animals. I have seven does. The meat is very good, too. I usually put two or three kids in the freezer every year. Get a copy of *Storey's Guide to Raising Dairy Goats* by Jerry Belanger from Countryside Bookstore or Tractor Supply. It tells you everything. – *Katherine, New York*

Just 1 *(one!)* tablespoon of detergent required!

COUNTRYSIDE: I'd like to offer another recipe for laundry detergent, which I have been using for over six months, and has worked out wonderfully. It costs about $24 for an entire year's supply. A large plastic bucket with a lid is necessary to mix it; I used a five-gallon food storage bucket and it was half full from this recipe. This is best mixed outside! The Purex adds scent and softener. The laundry is a little "coarse" feeling without it.

1 box of Borax
2 bars of Fels Naptha, grated (protect your hands)
1 large box (4 lbs.) baking soda
1 box Arm & Hammer Washing Soda
1.5- 2 bottles of Purex Crystals
1 (3 lbs.) tub of Oxy Clean

Mix together dry. Use only *one tablespoon* per load, or a second tablespoon for really dirty laundry. This mixture will dissolve in cold water, and works in front loading washers. It can be added into the tray or directly into the tub. (I remove the detergent tray from my top loader and put it in there.) I have used it to hand wash items and prefer liquid detergent for that. – *CG, New Hampshire*

Help wanted

Countryside: We raise and grow all of our own food and basically provide pretty well for ourselves. We are both semi-disabled and retired, and are looking for a couple or family that enjoys getting their hands dirty and is willing to accept that our small farm is a life and not just a one-day chore here and there. We raise our animals to butcher, garden, have many varieties of fruit, can anything and everything, and also have bees to round it all off. We are still cooking on a 100-year-old wood cookstove that we enjoy very much. We would love to share what we are doing and know that there are people out there that have needs because of hard times. We would like to help out. We are struggling to find people anywhere and I know they are out there. — *Vicki and Bob, booboo10364@yahoo.com*

What will *you* be doing at age 97?

Countryside: I am an organic gardener/carpenter with almost a century of combined experience. Northeast Florida is a nearly perfect geographic location that allows year-round gardening. I grew up in Western Kansas, product of family heritage of conservation. We used strict organic practices and recycling long before it became the norm. My mother is looking forward to planting her 78th consecutive garden in the same plot, proof that going organic works. Not too shabby for a young 97-year-old, huh?

As you can see from the attached pics, I've stepped out of the box a bit. Being limited to 900 sq. ft. of "green space" makes growing "up" instead of "out" a must. Note the permanent T-posts. Simply unwind lines from the opposite fence and attach to posts. Set in a few climbing wires and you're ready for climbing veggies. Check out the "upward tomato vines."

Using a conveyer made from a few extra parts makes life easier. I grew tired of running my mower back and forth across a pile of leaves, so by using the conveyer and adding a couple of scoops of manure and a little water, a real "super mulch" is created. Earthworms love the finely chopped mixture.

Limited space in Bryan's Florida garden requires growing vertically whenever possible.

The little chicken house, cross tees, 35 ft. cold frame and all manure and compost bins are constructed from recycled 4 x 4 fence posts. — *Bryan Estes, Florida*

Homestead health:

Stretching for health on the homestead

By Susie Grossman
Indiana

Susie Grossman

I've been an avid reader of Countryside for many years, and have learned a great deal. I enjoy all of the contributor's articles, and even when they don't pertain to me personally, I have found inspiration through the challenges and successes of others.

I own a small yoga studio in northern Indiana and also train clients on an individual basis with kettlebells and yoga. I have been blessed to be able to shift from full-time work at a factory to being a small business owner, doing what I love! Countryside and its many contributors gave me the knowledge to learn how to live frugally and debt-free so that I was able to pursue my dream of teaching others.

I have noticed that not many people contribute articles on exercise for those on the homestead. In keeping up with chores and animals, at times, we often forget that our bodies need to be taken care of with as much love and attention as our animals and our homestead. Our bodies need to be stretched every day to keep them running smoothly. I wanted to share a few stretching options that will help your body get ready for the work of the day and may also protect you from injury.

Mobility drills are a simple first choice exercise. Move your body in many directions with a focus on the major joints—hips, shoulders, knees, and elbows. Swing your arms gently. Lift your knees. Circle your hips right and left, turn your head from side to side (slowly), and circle your wrists. Circle your arms from the shoulder fully (if you have a full range of movement and no injuries). Move your body rhythmically and symmetrically, as you feel led by areas of tightness.

Do several repetitions of movement with each joint to encourage the synovial fluid to move and protect the joint when you begin vigorous work. Stretching and moving the muscles allows them to elongate, get a little blood flowing, warm up and prepare for harder work. The same series can be repeated before you go to bed at night. Although this little change in your routine might not seem like a lot, you may be surprised to discover how much better you feel before, during and after a day's work.

Stretching does not necessarily require long holds of deep stretches (as in yoga) to be effective. Flexibility is relative to your daily requirements. If you can't bend down to tie your shoe because your hamstrings are too tight, then you should think about stretching them a little bit. If you can't reach overhead to work because your shoulders are too tight, you could use some flexibility work. If you don't know where to start, buy a used book on stretching and study it for proper form. Repeat the exercises exactly as described.

If you want to do the splits or backbends, just because you have a desire to do the splits or backbends, I recommend that you see a local yoga teacher who can teach you properly.

Susie Grossman, NASM-CPT, HKC, Certified Turbo Kick Instructor 574.453.6323; www.WarsawsSecretFitness.com

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Alternative energy:

Sizing your battery bank

Don't underestimate your needs

By Dan Fink
Colorado

It's always fun to cruise the hills and canyons of Colorado in a vintage automobile, and I've occasionally had the chance to do just that with my neighbor Dan B. in his nifty old Model A Ford pickup. But after one excursion I got an email from a fellow volunteer firefighter saying, "I passed you guys on the road last night, and I was right up on you before I even saw your lights. They were so *dim*. Why is that?"

Most of the answer is that the Model A used a 6-volt electrical system, and that actually sheds some light on a very important consideration when designing and installing a renewable energy system backed up by batteries: What system voltage do you design for, 12 volt, 24 volt or 48 volt?

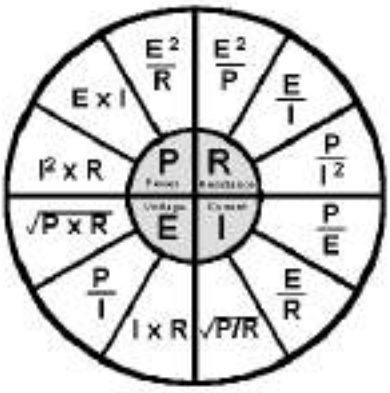


Diagram 1: Ohm's Law wheel

The problem is that the lower the voltage electrical energy moves at, the higher the losses from resistance heating. It's shown in in the Ohm's Law wheel in Diagram 1, and the "squared" part is what really gives us trouble. These are commonly referred to as "I squared R losses." You can make up for this by using thicker wire—but copper is a very expensive metal. If you halve the voltage of a circuit, to keep losses the same you'd have to increase the wire gauge by three American Wire Gauge (AWG) sizes, a pricey proposition. "I squared R" is why those Model A headlights seem so dim, and also why American automobile makers all moved to 12 volt electrical systems in the 1950s.

The reason everything lead-acid battery-related comes in multiples of two is simply the nature of the electrochemical reaction that happens internally in modern cells. No matter how big or small each battery cell is, it operates chemically at two volts, and to get higher voltages you simply connect the cells together in series (Diagram 2). Both 6-volt and 12-volt batteries are easy to manufacture in convenient sizes, and easy to put in series to make 24- or 48-volt systems. Larger power systems often use a greater number of 2-volt batteries in series to reach these voltage standards.

12-volt home power systems, back in the day

Back when I first started in the renewable energy business, almost every off-grid power system was 12-volt. Solar electric modules were designed for it, thanks in part to both the oil and gas industry and the U.S. Coast Guard adopting solar in the 1970s for the off-shore marker lighting of oil platforms, barges and buoys. A huge variety of 12-volt lights, pumps, motors, music and tv systems and even small appliances were (and still are) available from automotive, long-haul trucking and camping manufacturers. Many early off-grid home power systems were wired entirely for 12 volts, as back then inverters—which convert DC electricity from a battery into standard 120-volt AC house current—were extremely expensive. But these 12-volt DC home systems presented many problems, too.

One problem was (and remains) the standard 12-volt DC outlet, that cigarette lighter socket that anyone who owns a vehicle both loves and hates, whether they smoke or not. It works okay for charging your smart-

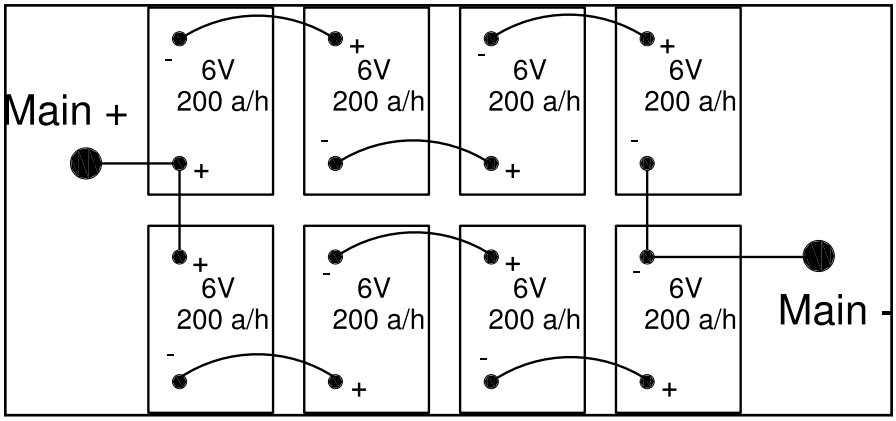


Diagram 2: Battery cells connected in series

phone while driving, but once you start trying to use more power from it, such as for a small inverter or a 12-volt travel coffeemaker, the connections fail fast. Back in the day, many people wired their 12-volt DC homes with cigarette lighter wall sockets that cost over $10 apiece (compared to 50 cents for a regular outlet), and again failed quickly. That then led people to chop off the cigarette lighter plugs from their appliances, replace them with standard AC plugs, and install regular 120 VAC wall outlets and switches and lights, but all wired at 12 volts. That caused many more problems, as a wiring polarity error could instantly zorch an expensive 12-volt car stereo, and woe to the guest from town who unknowingly plugged a 120 VAC appliance into a 12-volt outlet! It also turned out that regular wall switches actually fail after only a few years when used at 12 volts DC. Check back to Diagram 1 and do the math—a light or appliance that draws 120 watts uses only 1 amp

Battery monitoring

Back in the day, we off-grid "pioneers" had only one way to measure the state of charge (SOC) of a battery bank: voltage. The problem was, that only worked when the batteries had been "at rest" for two to three hours, with no power coming in and none going out. Which pretty much put the only time to take a reading at around three in the morning. We also learned how to interpolate readings taken at other times of the day, simply based on years of experience…but there was always that "blind spot" during the day while charging, when voltage doesn't provide much feedback on state of charge. Here's a quick list of different ways to figure any battery bank's state of charge.

Voltage: **When your batteries have been at rest, you can indeed get a fairly accurate sense of their state of charge by simply reading battery bank voltage with a wall-mounted meter or a handheld multimeter. Diagram 4 shows a typical at-rest voltage versus state of charge situation. But keep in mind, when the batteries are being discharged, their voltage will show far lower than actual state of charge; a running refrigerator will easily make this reading show 20-30 percent less than actual SOC. And during charging, all bets are off—you simply have no data at all until the the charger reaches float stage and stays there; only then do you know they are full.**

Diagram 4: hydrometer

Specific Gravity: **This is (literally) the acid test and bottom line for battery health. Wearing all your proper PPE, (see Battery Safety, last issue of Countryside) use a hydrometer (left) to suck up battery electrolyte into a hydrometer, measure both specific gravity and temperature of the electrolyte, and write these numbers down. For each and every cell. This is how professional off-grid installers troubleshoot and diagnose battery problems, though we usually use a refractometer that needs only a drop of electrolyte instead of a whole turkey baster hydrometer full of that nasty stuff.**

Amp-hour meters: **This is the solution I recommend to almost everyone, and they cost only about the price of single battery (monitor photo). These meters tally all the energy coming in to your battery bank and out of it, and simply show you a "percent full" number. Even children can interpret that reading, and say "Mom, the batteries are almost down to 50 percent, can I go start the generator for you?" These meters are not perfect—they need time to "learn" how your battery bank behaves—but in my opinion, the simplicity makes up for all the inaccuracy. My amp-hour meter is mounted in the living room, so it's always obvious to everyone what's up with my battery bank.**

Battery monitor

Three-stage charging

When it comes to preserving the health of a large, expensive home battery bank that sees daily use, an inexpensive auto-parts store charger just won't cut it. All battery manufacturers specify three-stage charging for longest battery life. Fortunately, all modern charge controllers for solar, wind and hydro use this charging regime, as do all inverter/chargers designed for off-grid use. The charger simply feeds up charging energy to the battery bank at the best rates for the right times, to make every bite easily and efficiently digestible.

Diagram 3 shows how three-stage chargers perform their magic. During the "bulk" stage, the battery receives every bit of energy the charging source can provide. This makes up the majority of the charge cycle, bringing the batteries up to about 90 percent state of charge. After the batteries reach a certain voltage set point specified by the battery manufacturer, the charger switches into "absorb" mode, and this is where many people who don't use automated chargers run into trouble. Absorb is all about timing and is critical; during this phase, the controller holds the voltage steady while the remaining 10 percent of battery capacity is filled with gradually reducing current. Typical absorb times range from two to four hours. After that, the controller switches to "float" mode, also known as a trickle charge. This provides just enough current to keep the battery happy and healthy without boiling off electrolyte, and prevents self-discharge.

With flooded lead-acid batteries (see the last issue of COUNTRYSIDE) there's a fourth stage of charging, called equalization. It provides a controlled overcharge that brings all batteries in the bank up to the same state of charge, and should be performed at least four times per year; many installers now recommend monthly. All that's involved is checking each battery cell to be sure it's topped up with distilled water. Then hit the "equalize" button on the charge controller, and it takes it from there. You can program most controllers to equalize automatically on a set schedule, but if the battery electrolyte level is too low you'll cause permanent damage, so I always recommend doing it manually. And always follow the battery manufacturer's instructions to the letter—sealed batteries such as VRLA and AGM will be ruined if equalized like flooded varieties.

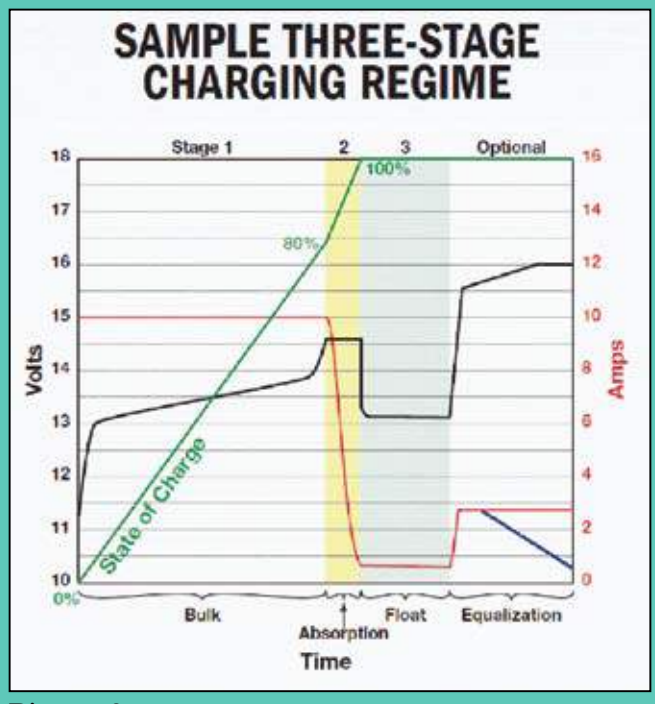


Diagram 3

at 120 volts, but uses 10 amps at 12 volts. Those switches failed because we were using them at 10 times their rated current capacity, and that's also a fire hazard. Some homeowners even used adapters to fit car tail light bulbs into regular screw-base light sockets. Wiring a house for DC loads also required #10AWG cable. If you've ever had to pull that stuff through studs and walls, and then connect it to switches and outlets, you already know how brutal that process is compared to the usual slinky and thin #14AWG used in most home branch circuits.

A new era of inverters

Then, *finally*, the price on inverters started to drop as more off-grid homes were built. Now, it makes no sense at all to painfully pull giant #10 wire for 12 volt DC circuits in any home, and even many RVs are now wired only for 120 VAC house current at the outlets and lights. Worried about how to cope with living after an inverter failure and waiting for the repair? Just buy an inexpensive extra, and store it on a shelf. You'll be back up and running in under an hour, and while you may have to be more frugal with your power use until your main one arrives back from the repair shop (can't run the microwave, dishwasher and fridge all at the same time for now, sorry), life will go on as normal. I actually keep a few extra, older inverters in stock here on a loaner basis for clients who get zapped by lightning, etc. and need repairs. I'll be discussing everything about inverters in an upcoming COUNTRYSIDE article.

The real impact of reasonably-priced inverters was simply this: Any electrician anywhere, or *you* with your DIY skills, can easily wire your house, cabin, garage, shop, RV,

camper or even deer stand just like any other house in town for standard 120 volt AC house current, provided by the grid or a generator. Then, all the seemingly exotic (but really very straightforward) renewable energy equipment you bought connects to your home with three or four house current wires in your main breaker box, just like in town.

12, 24 or 48 volts?

This is a choice you'll have to make for your power system before you pull out your checkbook, no matter if it's for your home, cabin, RV, boat, or mansion. I almost always recommend 48 volts. The equipment is readily available and costs no more than any other voltage, you get more watts of output for both your dollar and the size and weight of the equipment, everything runs more efficiently with lower resistance heating losses, and you'll save a bunch by using thinner copper wire throughout the system.

There are exceptions of course—with standard battery sizes (see the last issue of Countryside for detailed information on battery banks) coming in at 6 volts, using eight batteries to make 48 volts may be just more capacity and cost than someone might need for a small system in a small home or cabin. In those cases, 24 volts (four batteries) is perfectly acceptable. As for 12 volts, I consider it worthwhile only in campers and RVs, as they can't carry much battery weight and it can be handy to have a couple 12 volt outlets around for camping.

Now remember, I'm not talking about actually wiring your house for 48, 24 or 12 volts—just your battery bank and Balance of System equipment right by the system control center. Your inverter will seamlessly and inexpensively convert DC battery voltage to regular old house current.

Sizing your battery bank

For decades solar installers have relied upon system sizing spreadsheets for designing off-grid systems. Many excellent ones are available online. You simply tally up the wattage of all the different loads you plan to run, estimate the hours per day and week you'll be running them, and let the spreadsheet do the math for you. But as a panelist at a recent conference of off-grid system professionals, I asked for a show of hands on how many of these experts used sizing spreadsheets. Well over half the hands in the room went up. Then I asked how many of these designers and installers found that the spreadsheets gave an accurate indication of actual energy usage. Only about two hands went up.

I think I've identified the root of the problem. Off-grid system sizing spreadsheets are a bit like anonymous online surveys about your sex life—everyone tends to underestimate their needs and overestimate their capabilities. And, remember how individual batteries are almost always 6-volt or 12-volt; that means you are

buying them in "blocks" of capacity range. For example, with a 48 volt system a typical battery bank consists of 8, 6-volt batteries wired in series to give 48 volts. At the usual 350 amp-hours apiece for L-16 batteries, that's 2,100 watt-hours per battery, for a total of 16,800 watt-hours (16.8 kWh) of storage (of which only half is usable). The next step up is to add eight more batteries, putting you at double the capacity and double the cost. That's a big gap, and there aren't many options for batteries in between L-16s (350 amp-hours) and golf cart batteries (225 amp-hours). The options that *do* exist tend to be more expensive, simply because fewer batteries are produced in those intermediate sizes.

So, I tend to take a more practical approach, and it seems to work. The key is to focus on the big loads that run frequently, identify those that the homeowner can't control, and leave a big buffer for all the little stuff. For example, the refrigerator and freezer: These are both big loads, and they turn on and off when *they* need to, without regard to the current state of charge of your battery bank. Same with the blower on your home heating system. And your well pump and water pressure pump. It's certainly coincidence, but it always seems like my refrigerator/freezer chooses to go into its defrost cycle (which draws a hefty 450 watts) right at the times when my battery bank is low after a snowstorm or a spell of rainy weather. Arrgh! Fortunately, the outlet is easily accessible and I can unplug it as needed. A freezer full of food has a lot of thermal mass, and can easily hold food cold for at least 24 hours if you are careful to not open the door very often.

Refractometer

percentage of charge	12 volt battery voltage	24 volt battery voltage	specific gravity
100	12.70	25.40	1.265
95	12.64	25.25	1.257
90	12.58	25.16	1.249
85	12.52	25.04	1.241
80	12.46	24.92	1.233
75	12.40	24.80	1.225
70	12.36	24.72	1.218
65	12.32	24.64	1.211
60	12.28	24.56	1.204
55	12.24	24.48	1.197
50	12.20	24.40	1.190
40	12.12	24.24	1.176
30	12.04	24.08	1.162
20	11.98	23.96	1.148
10	11.94	23.88	1.134

Chart from the Trojan Battery company for Trojan L-16 batteries

The other critical load you should pay attention to and carefully estimate is lighting—and be sure to remember that in wintertime, your lighting load goes up thanks to shorter days. For most other loads, you are in complete control. When power gets low, cook your rice on the gas or wood stove instead of the electric rice cooker. Do the dishes by hand instead of in the dishwasher. Make drip coffee on the stove instead of using the electric coffee maker. Put off doing laundry or vacuuming the carpet until the sun is shining again. Use the laptop computer instead of the desktop. Play cribbage instead of watching a movie. And so on.

I *do* highly recommend that everyone planning to move off the grid try out a battery sizing spreadsheet online…but don't stake your investment on the results. You'll be married to the power system you purchase for a very long time, and there's more to such a long-term

relationship than anonymous online compatibility surveys.

How to keep your batteries alive

In the last issue of COUNTRYSIDE I briefly discussed the most common causes of premature battery bank failure. The top culprit in my mind is chronic undercharging, which boils down to using more energy than you are generating. When I go on a troubleshooting call after a homeowner phones to complain that the battery bank "just doesn't seem to hold much of a charge anymore," I'm already 99 percent sure of exactly what's going on, and preparing to deliver the bad news that a battery bank replacement is likely needed. Ouch.

First, install a good battery monitor and learn how to read it. My policy as an off-grid systems designer and installer is that a battery bank monitor is *required;* If you don't want to bother with it, go find another installer. An excellent monitoring system actually costs only about as much as a single battery, and you are likely already buying either four, eight or 16 batteries to build your bank. It's a small amount of money well spent. See the sidebar for more information on the different ways to monitor battery health.

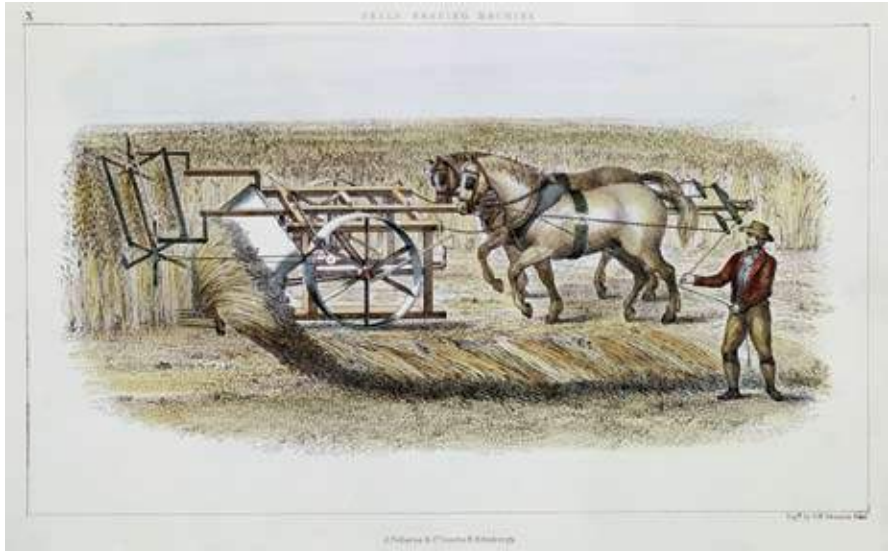
Always use three-stage charging systems, set exactly to the battery manufacturer's specifications. All modern solar, wind and hydro controllers provide three-stage charging (sidebar), as do modern inverter/chargers when charging via the grid or a fossil-fuel generator. And almost all are easily programmed to those exact specs via a digital panel display and buttons.

And finally...

Treat your battery bank like a good friend. Drop by and check in on how things are going frequently, offer support and assistance when needed, and be sure to try and catch and solve any problems before they get serious. That way, in times of need your battery bank will be there for you, too.

Protecting your homestead innovations

By Jerri Cook
Countryside Staff



Bell's Reaping Machine

You can't be a homesteader if you're not an inventive soul. It is the one and only requirement to join the ranks of the self-sustained. You must be able to look at a five-gallon bucket and see a chicken roost, a tomato cage, and mold for cement pavers—at a bare minimum. Because homesteaders are such an inventive lot, it's no surprise that most of the innovations that have helped build our modern world were conceived on a homestead. This is true of the seed drill, dreamed up by farmer Jethro Tull who needed to grow more wheat to satisfy the appetite of a nation, and the mechanical reaper invented by Cyrus McCormick with the help of a slave named Jo Anderson. The difference between the inventive solutions shared in the pages of Countryside and the inventions that have advanced agriculture is their worth in the marketplace. It's one thing to share current or past common knowledge. Our readers do it all the time. But if you've got an idea that could change the world, how you disclose it to others could have long-lasting effects on any rights you have to profit from your own creative innovation.

Nearly every American can name some of the more basic constitutional rights—the right to free speech, the right to freedom of religion, the right to equal treatment under the law. But these rights came with amendments to the Constitution. The right to enjoy the exclusive benefits of one's own inventiveness was so important that the Founders included it in the body of Constitution: *To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries*~Article I, Section 8. Clause 8.

The reason for the inclusion of property rights in the very body of the original Constitution is as valid today as it was then. Of all the resources that we hold to be intrinsically valuable, none is more valuable than human ingenuity. It's what drives our existence. And while there have been times in our collective history where someone has made a discovery and openly shared it with everyone, those times are few and far between. Human nature being what it is, if you want ingenuity, you're going to have to reward it with something more than altruism…so the Founders did. They gave us a guarantee that for a limited time, the federal government will prevent others from profiting from your innovation, as long as you register your patent or trademark with the United States Patent and Trade Office (PTO).

The American Patent System

At present, the American trade-

mark system is governed by two pieces of legislation: The Patent Act of 1952 and the America Invents Act of 2011. The two pieces of legislation are wildly different, as reflected by their passage dates. Under the 1952 Act, an inventor who was the first to conceive and reduce an invention to practice was granted a patent, giving them the exclusive right to control, sell, license, or otherwise exploit their invention for 20 years from the date of the original application. This was known as the "first-to-invent" system.

After the passage of the America Invents Act, the United States became a "first-to-file" system. The changes took complete effect in March of 2013. Now, if two people invent basically the same thing, the patent will go to whoever gets to the Patent and Trade Office first. This change arguably favors corporate research and development over the small inventor who may not have the resources to engage in the arduous process of filing a patent claim.

As you would expect, the 2011 legislation didn't exactly make the American patent system more efficient, let alone more equitable. Since the America Invents Act became law, patent claims have jumped sharply, giving rise to a whole new class of litigant—the patent troll. Patent trolls leverage the high cost of litigation by filing infringement claims with no intent of going to trial. Instead, they extract large settlements from so-called infringers who cannot afford to defend the action in federal court, which is where all patent cases are heard. Enter the Congress and Executive Branch.

At present, there are at least three patent bills making their way through the Congress. In the House, there's H.R. 3309—otherwise known as The Innovation Act. One of this Act's most important provisions would make the losing party responsible for the prevailing party's legal fees. The other two, The Patent Transparency and Improvement Act and the Patent Abuse Reduction Act are Senate bills which would impose strict new procedural rules. All three seek to close the litigation lid on Pandora's Box of patent trolls.

On February 20, 2014, the White House announced a new set of initiatives that are aimed at curbing claims brought by patent trolls. One of the proposals would engage the public in the process via social media in hopes of more readily identifying any prior inventions that are already being freely used by the public. The Administration has also proposed a full-time pro bono coordinator to assist low-income inventors with the patent process, which can be slow and expensive.

While the legislative and executive branches may have jumped in feet-first to battle the emerging market for patent trolls, members of the judiciary aren't so sure. Rob Lindefjeld is a recognized leader in the area of patent law. As Chair of the American Bar Association's Section of Intellectual Property Law and Chief Intellectual Property Counsel of Nantero Inc., he has expressed his concerns about the involvement of the other branches of government in forming U.S. patent law. "Present and

former judges of the Federal Circuit, the court that has guided our nation so effectively through much of our recent technological boom, have expressed concerns regarding the effect that some of the proposals designed as a response to litigation tactics of some patent assertion entities may have upon the justice system as a whole, and the federal court system in particular. My personal opinion is that Congress should continue to rely primarily upon the courts to handle the problem of overzealous litigants. Putting aside any potential for constitutional infirmities presented in legislative reform measures, I happen to believe that federal courts, particularly the Federal Circuit, are best suited to handle the threat that patent assertion entities present to the vibrancy of our system while doing minimal harm to an intellectual property system that has served our nation so well. Our common law system of justice has really served our nation well for so many years and has been shown repeatedly to be the best way of avoiding 'unintended consequences' created by legislative fiat."

With all three branches of government trying to formulate patent law, you can bet that the homestead inventor is looking at a minefield when thinking about applying for a patent. If you think you've invented something that is new, useful, and non-obvious, spend some time on the U.S. PTO's website. The information there will help you determine if your homestead invention should be patented. But keep in mind, a patent isn't a guarantee of success.

When a patent won't protect you

Even those who make it all the way through the process and obtain a patent don't have a guarantee of financial success. A patent only excludes others from using or profiting from your invention without your permission. It doesn't stop someone from using the raw materials that your invention needs to function. Just ask Ryan Thomas Bechard. Ryan invented a waste oil combustion system. "We manufactured heating systems that incinerated used oil for space heating," he explains. At the time, used motor oil cost next to nothing to acquire. On his own, with years of legal study, Ryan applied for and received two patents on his system. He established a successful business and all was well, until Valvoline went green.

"Valvoline developed a method of purifying used oil and blending it with virgin oil resulting in the new 'green oil,'" he explains. "Now, used oil collection companies are paying upwards of $2.75/gallon. Thus KingBuilt's market was utterly destroyed."

What do homestead innovators do when they're put out of business by a large corporation? They invent something else—which is exactly what Ryan did. Ryan went back to the drawing table, with his faith in tow, and invented an oil press for homestead use.

Ryan's cold-press oil extractor will extract oil from just about anything that grows, even botanicals. According to Ryan, his latest invention will extract oil "from raspberry, prickly pear cactus, tomato seed, shea nuts , jojoba, etc…."

"I will put it this way, if a bio substance contains oil, we can extract the oil out. If our press doesn't instantly work, we will modify the press and make it work. We have produced many custom oil presses for people," says Ryan.

An enterprising homesteader could even make their own corn oil. "However," explains Ryan, "strictly from the corn germ, which is the tip of the corn kernel. Corn by itself is only 3% oil. Our research on corn shows that all the energy that goes into mechanically separating the germ and just crushing the germ doesn't pencil out."

Ryan has another patent application pending at the PTO. You can see his newest invention in action at OilPress.co. (It's .co, not .com.)

The Whizbang guy

The bad news is not every in-

vention is patentable. One of the requirements for patentability is novelty. Your invention has to be new. If something has been widely used for decades or even centuries, it's ineligible for federal patent protection. For instance, you can't patent a fork, a piano, or a common bicycle. Also ineligible for patent protection are inventions that have fallen into the public domain because the patent has expired. Once the patent period is up, anyone can use, copy, and produce it. That's exactly what Herrick Kimball did when he introduced the Whizbang chicken plucker. Herrick simply built a better mousetrap.

The good news is that unlike patent law, the three branches of government aren't all that interested in trademark law, making it a much more economic and efficient way for homestead innovators to protect their re-inventions. It's faster, easier, and cheaper to register a trademark with the PTO than it is to go through the patent process.

Instead of applying for a patent, Herrick is in the process of acquiring a trademark for Planet Whizbang. "I started Whizbang Books (now Planet Whizbang) back around 2002, with the publication of *Anyone Can Build a Tub-Style Chicken Plucker* (a.k.a., the Whizbang plucker plan book)."

"I self-published 100 copies (the first printing) of that book and had them comb-bound at a quick-print shop. My investment was less than $1,000. I sent review copies off to several magazines, including Countryside and I think all of them eventually mentioned it to their readers. I also managed to sell a few copies of the book by mentioning it at a Yahoo! discussion group. I offered to send the book with an invoice and trust the people to pay. The first book I sent went to Australia. I'm still waiting for the payment. But everyone else paid.

"Once people saw the book, they spoke favorably about it online. When people started making and using the plucker, and mentioned it online, that made a big difference. When I managed to figure out how to turn a Blogger.com blog into a

- Plant patents are the fastest growing domain for agricultural patents. In 2013 the PTO office granted 847 patents for new plants.
- Most patents are issued to residents of California. In 2012 the PTO issued 34,659 patents to California residents.
- The National Security Agency (NSA) has a patent for a new, useful, and non-obvious method that will help them spy on you—U.S. Patent 8,141,160. According to the application on file at the PTO, the computer-based method can search for possible information by any parameter the government selects—medical records, employment history, political affiliation—if you communicate about it, their computers can hone in on you. Read the whole application here: http://goo.gl/8fHwaz.
- Do a search on Google.com/patents to see if someone already holds a patent on your invention. This impressive database lets lay people view the entire application, including drawings, without being overwhelmed. A search for "chicken apron" will bring you to a patent for a product homesteaders who keep chickens will immediately recognize.

free web site with PayPal ordering buttons, sales really took off. And when people started posting YouTube videos of their homemade Whizbang pluckers, that helped sales a lot.

"I've sold over 25,000 copies of the book since 2002. My initial investment for 100 copies of the book, was my only investment in the business. It has supported itself since then and I plowed the profits into publishing other books, as well as stocking and selling plucker parts, all while working a full-time job off the homestead.

"The business has generated enough money that two years ago I was able to buy 16 acres of land with a house, adjoining the 1.5 acre homestead we've lived on for more than 20 years. We were able to pay cash for the property. And we are hoping to purchase another smaller property nearby to build a more efficient production and storage facility. Again, we will pay cash for it, and the money has all come from the home business. Better yet, in January of 2013 I left my factory job in the city and came home to work at Planet Whizbang full time. It was a dream come true. And it all started with a homely-looking chicken plucker plan book." *(See his books on page 60 in this issue.)*

What's in your backyard?

If you're a homestead innovator, you probably have several inventions and custom-made contraptions lying around. There may even be a couple of projects that you've thought about expounding on. Before you decide to share your invention with the world, take an afternoon to familiarize yourself with our patent and trademark process. Both a patent and a trademark will preserve your interests, but the processes and the costs are very different. If your invention, like Ryan's, requires years of expertise and precision machining to build, you're likely in need of a patent. However, if your inventiveness has led to specialized knowledge or a way of doing something, like Herrick Kimball, you might decide to take the trademark route.

You have a constitutional right to preserve your interest in your intellectual property, but only if you do it before someone else does. Keep that in mind when you're tinkering away, trying to find a better way to catch a mouse or shear a sheep.

Stack firewood to dry quickly

By G. Melis

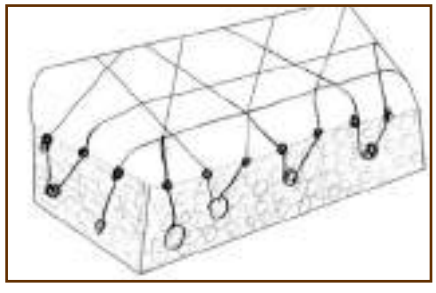
Selling "dry" wood is a bit problematic for an honest man. Even if the wood is kiln dried in an oven to zero percent moisture, the wood will absorb water from its environment as soon as it cools. An inexpensive way to ensure dry wood is to keep it up off the ground and protect it from snow and rain, in a dry place where air can circulate.

At the beginning, before harvest, you have a living tree that is very adept at conserving moisture despite injury and drought, as it has mechanisms or defenses to hold the moisture in its cells. Fresh cut or green wood is the beginning of changing live wood to dry wood. I have read that it takes oak cut to firewood length, split and stacked, two years to "air dry." In my experience, most other hardwoods do not take that long.

What I do to speed the process of air drying is to cut the trees in the winter, leaving the limbs attached. Supposedly, the twigs pull out the moisture during the next growing season. During the following winter I cut off the limbs and skid the wood out to the wood yard where it cures until spring, when the wood is cut into four-foot blocks, split fairly small, and then stacked up off the ground and covered with metal roofing.

In the autumn, I store firewood in the basement of our house. During the heating season my house is very dry, which dries the wood even more. I have heated my house with wood, burning nine "full" cords (4' x 4' x 8') a year for the last 30 years. While I do sweep out the ash from my chimney annually and check for creosote, I do not have any accumulation of creosote in my chimney. I have never had a chimney fire because I burn "dry" wood.

Stacking wood on pallets keeps it off the damp ground and helps the air circulate. Tarping the pile will keep snow and rain from dripping down the logs.



When in Rome

Pay attention to the *reasons* people do what they do

By Ben Hoffman

The old adage—"When in Rome, do as the Romans do"—turns me off. I don't like the status quo, but sometimes there is a reason for it. Many homesteaders leave "civilization" and venture off on their own, following their own ideas, and many end up in trouble. It pays to observe the Romans for awhile and understand why they do things the way they do. Many of them learned the hard way and we can benefit from their mistakes. Always check for alligators before wading into the swamp.

It even pays to observe the native wildlife. For example, where does the prairie dog build his home? Usually on the southerly/westerly slope. Why? Because the sun keeps the soil much warmer during winter and the prevailing westerly winds are broken by the higher ground. This is a good example for man, to reduce needs for fossil fuels. In northern climes, for crops and pasture, the southerly slopes are bare, dry and warm sooner than those tilted toward the north. Plants begin growing earlier and produce longer, and livestock has more days to graze.

There is a lot of information available, on and off the internet, that would benefit urbanites moving into a rural environment. Two of my favorite resources are U.S. Geological Survey (USGS) topographic maps and Natural Resources Conservation Service soil maps, available online and in print versions. Topo maps show ground elevation, degree of slope, streams, ponds, forest, open land, and cultural features (roads, buildings). Thus you can visualize the lay of the land and much of what's on it. Soil maps show the classification and boundaries of differing soil types. Interpretation data for the soils describe their suitability and limitations for roads, trails, building and agriculture.

One most important fact—water runs down hill. So lowlands with slow or no apparent drainage will hold water longer following rain or snow and may be too wet for building construction. The lower price of building lots in poorly drained soils may be more than offset by the problems of getting good drinking water and perching the septic system to get rid of effluents. Perching the septic is a one-time solution, but pumping effluents because of poor drainage and its attendant dampness is eternal.

Equally, maybe even more important, is siting a dwelling. I live on a north-south roadway, and most of the older dwellings are oriented east-west. Those places, with more area exposed to the warmth of the sun and less to the prevailing westerly wind, are easier to heat. Unfortunately, my house faces west, bearing the full brunt of the wind, with little solar gain. Down the road is a solar home, facing the road, with the sloping roof facing east, not south.

Unfortunately, affluence has produced more home designs featuring multiple roof lines. While these may be okay in Georgia (if you want to spend the extra money), they are a disaster in snow country. Snow accumulations in roof valleys can be a real problem; bituthene roofing underlay and all the flashing in the world may not be enough to prevent ice dams that back water up and eventually find a way into your bedroom. Some architects are not alert to these hazards and, though capable of calculating loads and designing structures, are oblivious to environmental considerations.

The farther north you go, the more important environment becomes. I wanted to build a log cabin in Alaska on a level site north of a volcanic ridge with a beautiful view of the Wrangel-St. Elias Range. Wanting a basement, I dug a test hole in late August and hit permafrost at 13 feet. In checking color-infrared aerial photos, the area north of the ridge was tinted blue (cold) and vegetation was mostly spruce. South of the ridge the photo was tinted red (warm) and tree vegetation was a mixture of aspen and spruce. So I settled for a site south of the ridge with a nice view of the Chugach Range. After building, I realized another interesting fact—the mosquito population was much lower on the drier, south side of the ridge.

I observed another interesting fact. Flat land cleared for agriculture was, when not frozen, constantly wet and unsuitable for crops. Why? The sun angle was so low in that latitude that soils on level or north-facing slopes never warmed enough to produce a crop. They warmed enough to melt the upper permafrost and produce standing water and flying mosquitoes all summer. Land with a southerly tilt was much warmer and quite productive. Near mile 83 of the Alaska Highway north of Fort St. John, British Columbia, there is a good example of this. An unproductive field on a north slope west of the highway had been abandoned (1989) and grew back to small trees. About 15 years later, this land was being cleared once more—but it would never produce a good grass crop.

Driving through the desert east of Reno are some examples of attempts to irrigate land that should never have been cultivated. Irrigation channels, plainly visible from the highway, were dry and full of tumbleweed. Desert lands are often so saline from centuries of low rainfall that agriculture, other than grazing, is not practical. And California has many examples of dry land that has been successfully irrigated but the saline effluents have destroyed plants and wildlife in the basins where the effluents were deposited, and poisoned the Colorado River.

So the moral of this story is not that you have to become a Roman, but at least consider their history and reasoning. Talking to the Romans might save you a lot of grief—learn from them and try not to repeat their mistakes.

Animal agriculture & water conservation

By John Hibma

Water is the most important nutrient for all forms of life. Without water, all activity on our planet would cease to exist. And yet humans have regularly abused water quality and water supply, lackadaisically and irresponsibly believing that we will always have enough good water for all of our needs.

For most of us living in the U.S., the availability of clean water has never been an issue. In our modern, technologically advanced society we've come to expect—and dare I say—have a right to water that is free of bacteria, pathogens and anthropogenic chemicals. Water supplies and quality have been well managed for decades and nothing makes the "news" quicker than polluted water in someone's town. The U.S. Environmental Protection Act of 1972 was originally created to address the widespread pollution of our waterways and riparian habitats.

People reading this magazine often have a connection to animal agriculture. They raise animals, big and small. They often have built their own home and have a large garden. They aspire to a life of independence and are in love with the natural beauty of their world. They understand that water is absolutely essential to the success of their business and to perpetuate their lifestyle.

However, with increasing population and the accompanying requirement for more food, we must be aware of the fact that there is a rising need for more aggressive management and usage of water, maintaining water quality and the conservation of all water related resources. We humans must realize that water is a precious resource not to be wasted.

Of key concern for all who make a living in agriculture or, at the very least, value a rural lifestyle and where their food comes from, is the balance of water for human and animal needs. Critics of animal agriculture are quick to suggest that the water-use efficiency from animals is much lower than the farming of crops such as grains, fruits and vegetables. Therefore, those critics say, animal agriculture should not be viewed as a long-term alternative or means of feeding the world's growing population. All of our protein and energy needs can be supplied by legumes, grains, fruits and vegetables.

Recent research, however, concludes that when the biological availability and quality of each gram of protein produced for humans is considered, the efficiency of water use in animal agriculture overall is not different compared with that used to produce plant proteins. Only soybean production is more water efficient than the production of milk, goat meat, and chicken. Furthermore, no plant protein can rival the water efficiency of egg protein.

Across the U.S. the competition for water is becoming ever more intense. Amazingly, we're finding that there isn't enough water to go around. We all take for granted being able to reach for a faucet and have cool, clean water in a matter of seconds. We've become spoiled with the extravagance of green lawns and golf courses and carwashes. Ironically, as the population flocks to the warmer climes of the U.S. to escape the colder weather, we need more water to stay cool. Increasingly, in our country, where we need water the most is where it's the most scarce.

Assessing and managing water needs here in the U.S. has been a political hot potato for many years. The midwest drought of 2012 put water usage and "climate change" once again, in the national spotlight. During the winter of 2014, the water shortage in California became critical. One of the world's most comprehensive water storage, distribution and irrigation systems has transformed

a region that is essentially semi-arid to blossom with amazingly diversified agriculture. However, with more years of below average rainfall and mountain snowpack, the water supply has been strained to deliver adequate water for agricultural needs while, at the same time, keeping the burgeoning population of the Golden State from going thirsty.

In southern California, decades of animal agriculture have defiled the underground water supply with high nitrates. That water may never be fit for human consumption. Animal agriculture which had been an economic lynchpin for decades in that region is now being regulated out of existence. In grain-producing areas of our country, intensive removal of ground water from aquifers is affecting both farming and water availability for communities. It's becoming increasingly difficult for animal agriculture to coexist with an urbanized population.

There's an interesting paradox that's emerging all around the world. As the standard of living improves for many countries, there's a greater demand for high quality animal protein which means a steady growth in animal agriculture. However, the growth and dispersion of human populations and the accompanying environmental pollution of surface and groundwater in many developed and developing nations is narrowing the margin between the available water supply and the demand of humans and animals.

Because of their ability to consume fibrous and lower quality feedstuffs that are not useable as food directly by humans, animal agriculture holds a unique niche in the production of food for humans. Animal agriculture enables much of the land that's unfit for conventional farming to be used to produce food for the world's people. Animal agriculture will always have a place in our world because it fills a need in our ecosystem by converting these feeds into high quality proteins, vitamins, fats, and energy for humans. Sustaining this unique niche very much depends on sufficient quantities of water for maintenance and production.

Only soybean production is more water efficient than the production of milk, goat meat, and chicken.

By the year 2050 food production on our planet will need to double from what it is now in order to feed the nine billion people expected to be living here by then. Farmers will need almost 20% more water to produce enough crops and livestock to feed that growing population. As the demand for animal protein increases, innovation and new technology will be critical for smart and efficient water use. Although livestock will never rival humans for the world's potable water supply, they do use large amounts in some production systems—and that's what many are worried about. We must develop and adopt new technologies in agriculture to ensure water supply, quality and sustainability.

Much of our culture is already disconnected from agriculture—not understanding how it works and its importance. As with many socio-economic-environmental issues, there are differing opinions as to how to best address and solve a given situation and who's to blame for using all the water. New regulations could result in animal agriculture becoming a casualty. It may sound farfetched now, but someday, owning animals may be illegal because they use too much water.

There's little question that water is quickly becoming the most precious resource on our planet. Regulations for water use are already in place in many parts of the world and knocking on the door of many more areas. Many people would be very happy to see animal agriculture eliminated. The larger animal operations such as feedlots and large dairy farms are already on the radar with regards to nutrient management and nitrogen pollution. Critics of large animal operations will be quick to point out their water waste and inefficiencies.

For many people, owning or caring for animals can be as much for aesthetic or lifestyle reasons as much as it is to supply food and fiber. Everyone engaged in animal agriculture must be diligent about communicating the importance and relevance—both from a nutritional and economic point of view—of animal agriculture. And at the same time those engaged in animal agriculture, as well as agriculture in general, must become more innovative as they seek to conserve water. All of us who are involved with animal agriculture will need to be proactive in finding ways to make animal agriculture more productive and less wasteful and showing the world its relevance.

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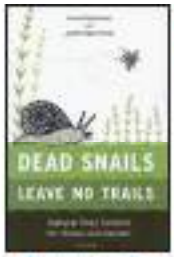

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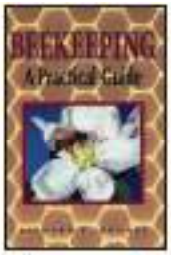

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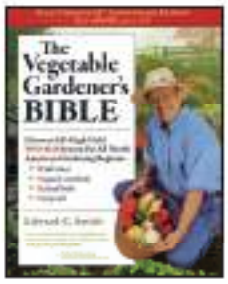

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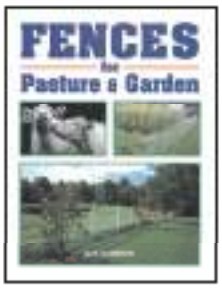

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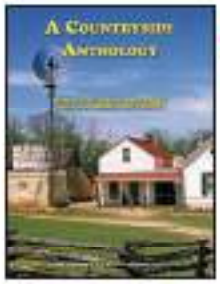

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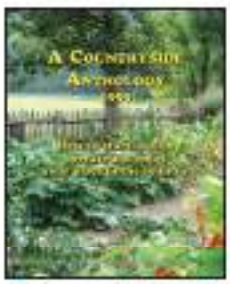

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The goat barn:

When 3 is *not* a crowd

These two does "share" a kid—something that doesn't happen often.

By Betty Taylor
Persimmon Ridge
Honey and Goat Farm
Tennessee

The natural world is as unforgiving and brutal as it is beautiful. We want to be nature lovers, but sometimes it feels as though nature does not love us. This winter has been bone-rattlingly frigid. I bemoan it, but on this sunny late February day, I look out at the seemingly lifeless landscape and know that it takes this brutal cold to hold back all the verdant life about to spring forth. Nature moves between extremes, and labels like "good" and "bad" do not apply. It is what it is.

This winter has driven home the lesson of nature's indifference to my humble human sensibilities. First my favorite rooster was plucked from his nighttime perch by a barred owl. I miss my rooster, but who can begrudge that wild bird for hunting to feed its February owlets?

Days later, 25 Silver-laced Wyandott chicks arrived in the mail. Even though I dipped each one's beak in warm water, watched it drink, and then showed it to the feed, and even though I carefully modulated the temperature under the heat lamp and watched faithfully for "pasty butt," two died each day for four days.

And so it went. My goats chose the worst weather of the "polar vortex" to deliver their kids. Surprisingly, none were lost to cold! The moms were diligent in cleaning, warming, and feeding them! I sat by impotently and watched the miracle take place—they and nature had it covered. Until the last birth.

Reba, a red and white myotonic, labored all day. Restless, she would lie down, get back up, and then lie down again. She would not eat. Then at nightfall, she ate and laid down among her herd and was quiet. I checked on her during the night and she remained calm. The next day she began pushing, but to no avail. One of the other kids, a little buckling, frolicked around her as she labored. In between pushes, Reba would lick him as if she were licking the caul away from her own kid. Powerful hormones, oxytocin, are being released at this time, which are important in bonding a mother to her kid. As the doe licks the caul away from the kid's head and nose, doe and kid are learning who each other are and are forming a bond. Unwittingly Reba was forming this bond with another doe's kid.

She was having no luck with all the pushing. I washed my hands and lubed up with a concoction I make of beeswax, olive oil, comfrey and tea tree oil--to prevent introducing infection. Baby goats are usually born front feet and nose first, but I felt nothing that felt like little hooves or a face. I put her in the cab of my pickup and drove her to the vet. To prevent exposing her to other sick animals, the vet agreed to tend to her in the front seat of my truck. Upon checking her, the vet said that the kid had died, was malformed and malpositioned, and was already breaking apart. It would have to be removed in pieces. So the vet sedated Reba and pulled the kid from her. She cautioned me that Reba would likely succumb to infection.

I took her home and propped her up over a bale of hay to wait for the sedative to wear off. The vet said propping her up this way might prevent the bloat that could occur if she were left in a lying down position. Goats continue to produce saliva, even if they are sedated, and can't swallow or clear it themselves. Prop-

ping her over a bale of hay helped keep her head in a position that let the saliva drain from her. As she was draped, unconscious and drooling, over the bale of hay, the same little buckling hopped around, on, and over her, using her still body as his playground. He leapt onto her back and slid down her neck and head again and again.

Night came and she was still unresponsive. I left her in the goat shed with her herd, thinking she'll make it or she won't.

Around 3:00 a.m. I awoke, bundled up, and went to check on her. She had moved herself from the bale of hay and was amid her herd resting comfortably! The next day, she was her normal old Reba—eating, drinking, moving about normally. But something else, something more amazing had occurred! The little buckling that had been frolicking around her as she labored and that had used her as a playground when she was propped over that bale of hay, was as bonded to her as he was to his real mother! Reba treated him as if he were the kid she'd lost. As far as she was concerned, he was the result of all of her labor. In the following days, he nursed from her and from his own mother as he pleased. Reba butted the other kids away, as is usual for does to do with kids who are not their own, but she doted on this little guy and followed him around making sure his world was up to her standards. I was amazed!

In his most recent book, *Gene Everlasting*, Gene Logsdon says, "We raise our farm animals with loving care, grow quite fond of them, put our lives at risk to save theirs if necessary, and then we kill and eat them."

I have killed and eaten my chickens after doting on them and nudging them along from day-old chicks. I raise six-month-old kids, like Reba's little buckling, for someone's dinner table. As I write about the beauty and the brutality that is the natural world—as an eater, I am part of that beauty and brutality.

To see more of Persimmon Ridge, visit PersimmonRidgeHoneyFarm.com

The cow barn:

Akaushi cattle – healthful meat

By Heather Smith Thomas
Idaho

The word Akaushi means red cow in Japanese. This breed was introduced to the U.S. in 1994. "This is the only free-grazing beef breed in Japan," says Bubba Bain, Executive Director of American Akaushi Association. "These cattle have been in existence as a distinct breed for more than 150 years and are a national treasure in Japan."

Dr. Antonio Calles brought some to the U.S. when he was at Washington State University. "He saw that the Japanese were extremely healthy people. They don't have problems with obesity or coronary heart disease and he wondered what they were doing different. The Japanese eat a lot of fish, but also consume a lot of beef. Dr. Calles started researching this, and found that meat from these animals had an abundance of oleic acid and mono-unsaturated fats. He imported eight cows and three bulls to the U.S. so he could build a herd and do more research to find out more about these cattle."

Calles started doing embryo transfers to produce more of these cattle in a short time, and created more than 6,000 offspring from those original cattle in 15 years. Many of these Akaushi are located at Harwood, Texas. "HeartBrand beef owns these cattle and sells or leases cattle to other breeders. Many new members have joined our American Akaushi Association, which was started in early 2010," says Bain.

The Akaushi is known for consistent, tender, flavorful, juicy, highly marbled meat. "Even though the end product is important, this breed has not sacrificed any other important traits such as reproduction and performance to get to the end result. Akaushi cows will put a good calf on the ground and the calves give good weaning weight, yearling weight, efficiency in the feed yard, grade and yield well on carcasses—and give you that consistent excellent cut of meat we're all looking for. This breed performs well for the cow-calf producer, the feeder and packer, efficient all the way down the chain," he explains.

"Carcasses on fullblood cattle are highly marbled and prime or prime-plus," says Bain. "We also have a lot of data on half-blood carcasses; Akaushi cattle cross extremely well with all breeds. We can double the grade and improve the yield on the offspring of any breed we put Akaushi on."

Delicious, healthful meat

Eating satisfaction is truly remarkable. Muscle fibers tend to be longer and thinner, which helps make meat more tender. The fatty acid composition is also different. When you cook this beef, you can pour the fat off into a cup, and at room temperature it stays liquid. Regular pork or beef fat, if you leave it sitting there, will solidify to a hard, white fat. Akaushi fat doesn't do that.

Today you can find Akaushi meat in leading restaurants across the country. When people taste it, they are impressed with the flavor. "The Akaushi produces healthful meat with a high ratio of mono-unsaturated to saturated fats," says Bain. "There's also a high amount of oleic acid in Akaushi meat (the healthy ingredient in olive oil). It is extremely heart-healthy. Our research at Texas A&M indicates this."

Dr. Antonio Calles says oleic acid is recognized by people in the medical community and the American Heart Association as the good fat for the heart. "Akaushi beef in any form gives the highest amount of oleic acid per square inch of meat," he says.

Bill Fielding, CEO of HeartBrand Beef, says the health benefits are a big plus for the consumer. "Customers are asking for healthful, tasty products. We're seeing growth of this aspect of the industry—whether it's grass fed or all natural beef. People want a healthier product with better nutritional value, and something that will reduce their bad cholesterol instead of increasing it. We strongly believe that if the beef industry started using these genetics and changing the way cattle are fed, we could produce a product that is better for you than pork, chicken, buffalo or any other meat," says Fielding.

Calles says that people have been told red meat will increase cholesterol. "Now we must educate people to the fact that these fats are good for you." People who must be careful what they eat no longer have to reduce their intake of red meat. This is great news because meat contains many nutrients our body needs, such as vitamin B_{12}, which is not found in a vegetarian diet.

"Red meat is a great source of all the amino acids to produce a complete protein. It's a package of complete nutrients, combined with eating satisfaction. This is an opportunity for the cattle industry to create something sustainable, with additional health value to the consumer. We can produce many millions of pounds of meat in this country, but we need to produce high quality beef that is healthy for the human body. If we can combine palatability with the health aspect, that's the way the cattle industry will survive. Our meat now has to be healthier, raised with no chemicals, no hormones, no additives," explains Calles. That's the only way we can compete with other industries such as chicken, fish, pork.

The cattle

Akaushi are red, horned, more

The American Project

Dr. Calles brought eight unrelated cows and three unrelated bulls to this country in 1994. This was the nucleus to start a breeding herd. "When you do careful selective breeding with this number you can prevent inbreeding. You mate bull number one with eight cows, giving eight lines of cattle. You mate bull number two with the same eight cows to give another eight lines, and do the same with bull number three. We also started using embryo work and using reciprocal crosses on daughters of the three bulls, and switched bulls to create more lines. Our inbreeding coefficient with this system was between 5 and 5.6, which is very healthy. An unhealthy inbreeding coefficient would be 14 percent and higher. Many cattle breeds have an inbred coefficient of 35 percent, which is very high," he says.

"We have additional sire lines from another population that is also pure, to avoid inbreeding problems. These sire lines came to this country earlier, in 1976. I was able to purchase semen from these bulls in the early 1980's. We have that semen in hand and plan to use it to create more genetic diversity," says Calles.

"Hopefully we can also obtain more semen from different bloodlines in Japan. We are working in a very precise way with this breed, to maintain all the important traits—fertility, productivity, milking ability, etc. with no problems—in every generation."

The first 11 animals arrived in New York in November 1994 and stayed six months. "It was cold and wet that winter. Then they went to Wisconsin for several years. The first three winters it was between 10 and 22 below zero. Then the cattle were sent to Texas. They came all the way from humid, hot weather of Kumamoto to New York, to Wisconsin, to Texas." These imported cows were hardy and long-lived, still productive into their early 20s. Calles was able to generate a large number of embryos from these cows, which shows their high level of fertility.

"When the animals came to the U.S. the bulls were confined in a collection center. We didn't retire them from collection until 2009; they were producing semen for many years. Two of the three survived into their 20s. What is amazing is that the bulls were kept confined and stayed sound. They were very functional and very healthy. Not very many bulls of other breeds stay fertile or survive for that many years with inactivity; they have problems with knees and feet," he says. Akaushi bulls have excellent conformational structure.

The biggest challenge for this breed in America was to get enough numbers—starting with such a small group—to produce enough cattle to supply the demand. It took several years to be prepared to offer semen for cattle producers. Now a growing number of people in various states are raising some of these cattle.

Several Idaho breeders have obtained Akaushi cattle. In 2010, Shawn Ellis, near Blackfoot, Idaho, signed a cooperator agreement to raise Akaushi for Heartland Brand Beef. Ellis received 60 cow-calf pairs (some full-bloods and some half-bloods crossed with Red Angus) in April 2010.

Jack Goddard, the northwest director for the American Akaushi Association says this Idaho herd is helping show people how the animals perform in a colder climate than Texas. They are also doing very well in rough rangeland conditions.

Akaushi are very hardy in a variety of environments.

heat-tolerant than black animals, which is a major issue in southern states, and have low birth weights. The cows calve easily with no assistance. Fullblood males average 72 pounds at birth, and females 68 pounds. Adults are moderate size. Bulls weigh 1,700 to 1,800 pounds and cows are 1,000 to 1,100 pounds.

Disposition is excellent. Akaushi have been extensively handled for many generations, selected for ease of handling. "There are many things they do with them in Japan that we can't even imagine; these are very docile cattle," says Bain. People working with Akaushi cattle view them as part of their family.

"We don't claim to be number one on weaning weights or yearling weights, but a rancher will never be embarrassed about the weights of Akaushi calves," says Bain. "Fullblood calves wean at 500 to 600 pounds. Crossbred calves have been averaging 600 to 700 pounds at weaning because of heterosis," he explains.

You get maximum heterosis when crossing animals that are totally unrelated, with wide genetic diversity. These cattle are not related to American breeds. "This produces more hybrid vigor than when crossing two American breeds, because most of our breeds have become crossbreds already," he says.

"The way the Japanese selected these animals and worked with them for many decades; we don't have to worry about variation on productivity or performance traits, feed efficiency and feed conversion," says Calles. "These traits were already selected and fixed for many years. All we need to do is provide a good environment for them, with good care and low stress management, and these animals will reach their genetic potential 100% of the time," he says.

Akaushi are very hardy in a variety of environments. "They were developed in Kumamoto, which latitude-wise is the same as between Austin and Temple, Texas, in a very hot and humid climate, so they do well in the southern part of our country. If you move them to the northern U.S. they do even better. Any time you reduce humidity and temperature in summer, they have less stress and less trouble dissipating heat. They do very well in the north, with ability to grow a good hair coat to withstand cold winters," he says.

"The reason these animals thrive in a variety of climates is because the Japanese government in the 1940s took some from Kumamoto and put them in Hokkaido—the same latitude as between Seattle, Washington and the Canadian border. In winter it's very cold, with a lot of snow. It took the Japanese 50 years to select genetics that do well in cold, dry weather, and infused those genes back into the general population of the breed, to improve versatility to handle any environment," says Calles.

The horse barn:

Why we're called "farriers"

The meaning behind the word

By Bryan S. Farcus ,CJF

According to a recent study conducted by the American Horse Council, there are approximately 9.2 million horses in the U.S. and of those approximately two million are owned by horse enthusiasts. As for the number of hoof care professionals (*farriers)* available? Well, you may be a bit surprised. Recent surveys suggest that the number of professionals (*farrier association members*) could be as low as 10,000. Although, this figure doesn't take into account those farriers who practice without any professional organization affiliation; other surveys suggest that perhaps the number of actual "working" farriers could reach 30,000. Even with the inclusion of this conservative estimate, it is still quite evident that the number is significantly low, when compared to the amount of horses that exist. Not so surprising, then, is the fact that after centuries of ever-changing ideology regarding what it means to be a *farrier*, one constant still remains—the need for more of them.

To tell the story of how the *farrier* has come to be is relatively simple. Many would say, "*farriers were born out of necessity.*" During the initial development of our society, the horse was instrumental and the care of him indispensable. Thus, the role of the hoof care provider (*farrier*) was born. As our industrial demands increased, so did our need to convert our raw materials into usable ones. Horses were called upon to be our "partners in labor" and their care was vital, so that we might enjoy the fruits of all that hard work. In those days, anyone having talent in the areas of horsemanship and horse care was a major asset for the success of all young and developing societies. I suspect that the historical perspective makes sense to most of us and it is not really a subject that is questioned, all that often. But what about the word *farrier*? How was that term coined? This seems to be the object of some confusion. Throughout our history, farriers have seen more changes in their job description than they have in their actual craft practices. Logically, this leads many inquisitive people to ask the following twofold question: What exactly does the term *farrier* mean and why is it that today's farrier has ended up with so many aliases?

The best I can do to answer this question is to offer a few suggested theories. First, let's begin with Webster's interpretation. To my surprise, I found their definition to be somewhat ambiguous. It reads as follows:

"...(n.) a blacksmith; (British n.) a veterinarian.

(Latin forms: *ferrum*, meaning iron; *ferratus*, meaning iron-shod)"

In reality, even though a farrier will study the skill of smithing iron, as well as the anatomy and medical concerns involving a horse's foot, there are many aspects of blacksmithing and veterinary medicine that are not applicable to the craft of horseshoeing. If we are to rely solely

on Webster for the definition of the term *farrier*, it leads us to the conclusion that it must be an umbrella title for both professions. However, this is quite the contrary. Most historians can provide us with a bit more intelligence. During the time of William the Conqueror (1066 A.D.) Norman noblemen invaded England and with them came a most trusted "master of all the kingdom's horses"; his name, Henry de Farrariis. Many believe that the English dubbed the term farrier to include anyone in charge of the care of horses, particularly the care of their feet. In other accounts, it has been documented that the family name, Farrariis, was taken from a French town, situated near the southeastern part of Paris, called Ferrieres. This town was widely known for its plentiful iron mines and those iron craftsmen who prospered. As time passed, those craftsmen were called "*ferriere,*" later to become shortened and re-titled "*ferrer.*"

With such an array of uncertainty as to the truest form of the term *farrier*, one thing is certain. Those who have assumed this title carry with them a long-standing tradition of being a powerful influence on the quality of life for all horses that are in their care. All farriers carry this awesome responsibility and it should never be taken lightly. In my view, the mere diversity of this title serves as a constant reminder of how important the job of a farrier actually is and it should always be a title that signifies pride, as well as distinction.

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The EIA test

By Hannah Timonen
Michigan

Everywhere, it seems, everyone involved with horses is concerned about the possibility of an illness called EIA. EIA stands for Equine Infectious Anemia, also occasionally known as "swamp fever." This retrovirus infection is transmitted by blood, and can affect any member of the horse family (horses, ponies, mules, and so forth).

Horse shows and county fairs require that horses entered in competitions or those that are stabled on the grounds possess a negative Coggins test. Many states and provinces have made it law that all horses traveling interstate must be carrying negative papers. What is EIA and why is it important to the horse industry?

When this disease is contracted, it often goes unnoticed until symptoms occur. The cells that are targeted are the macrophages, large white blood cells that travel through the body looking for foreign material.

There are three types of the illness: acute, subacute, and chronic. The *acute* illness is accompanied by a high fever, weakness, swelling of the lower legs and abdomen, irregular heartbeat and a weak pulse. The death rate is high. Sudden death is common in the acute cases.

The *subacute* illness progresses much more slowly than the acute illness and is less severe. Symptoms include anemia, recurrent fever, and swelling of the lower chest, abdomen and legs.

Finally, the *chronic* illness is also characterized much like the subacute type. Its symptoms also include recurrent fever and anemia. It is the least severe of all three types, and many people may not realize that the horse has contracted the virus until a Coggins test is performed. Equine Infectious Anemia is caused mainly by biting insects that draw and carry blood. The fly or mosquito transmits the disease by biting an infected animal and then transmits the virus to a healthy animal.

But the virus can be spread by other ways, too. It can be transmitted by saliva, milk, and body secretions. Blood transfusions and unsterile syringes have also been known to spread the virus in some cases. Cleanliness goes a long way to ensuring your horse's health.

The sad news is that there is no known cure for EIA. The infected horse will always be considered a threat to horses everywhere, especially if there are other horses nearby. The only way to safeguard other horses is to either quarantine or humanly destroy the infected horse. The horse may be clinically fine, but the risk to other horses remains high. Putting the animal down is the only realistic option at this time.

When testing the horse for the disease, your veterinarian will draw some blood from the horse, and put the samples into the small wells on a test tube plate. The plate is covered with a gel containing antibodies. The blood proteins will spread through the gel, and if EIA proteins are present, they will react with the antibodies, forming a visible line. This means it is "positive," meaning the horse is positive for the disease. The opposite will happen if the horse is negative. Often the blood samples are sent to a state veterinarian for the testing.

But we can still work to prevent the disease from spreading. Keeping the barns and paddocks clean, dumping standing water, and working to make our farms and ranches as bug and insect-free as possible will go a long way to ensure our horse's overall health. Also, having your veterinarian out to have the Coggins test done at least once a year will also help keep EIA at bay.

The horse barn:

Horses don't share

By Sally Lyn Brunelle
Catus Farm
San Diego County

As a girl I read every book that had a horse in it, you know, those stories about the poor abused horse that just needed someone to love it and save it. Well, I guess I still want to believe some of those stories, but let's get real here. Horses are horses and when it comes to food they don't share and seldom do you see one horse say, "You first."

When feeding time comes around (usually when they see me), it's every horse for himself. Whoever gets there first and pushes to the front gets the most, and then there is the "how fast can I get it down?" Let's not forget those back hooves, the teeth, and ears flat back that say "Back off, I'm first."

You may be thinking "Not my horse," but if you have ,more than one, this is what is going on in their minds. Horses do not think about the next meal, their attention is on the here and now. A healthy horse has a healthy appetite; if your horse walks away from his meal, start asking why.

Now that that's said, let me tell you of the horses that have come to me for help. Some very nice people who did not know that horses don't share asked me to look at one of their four horses who was not doing well. What I saw was an emaciated horse too weak to stay standing, with a badly injured back hock that was open and raw, and blind in one eye. The decision was made that she would be brought over to my farm for care, along with her three companions that also had varying degrees of malnutrition.

Paint mare

How did this happen? The horses were given hay every day. Like so many people, the owner is very busy with work, family and activities. There just wasn't enough time to stay and watch the animals.

The answer was simple—*horses don't share!* All four horses were kept in one large corral, hay was placed in four piles, all in a nice row. The largest gelding was the dominate horse in this little herd, the next in line was the other gelding, then the larger mare, and finally a little Arab mare. One horse is very capable of keeping other horses out of at least two piles of hay while he eats first, then the next one in the herd hierarchy eats nearest him and defends his pile, until he is pushed out by number one. This leaves the fourth pile for the third highest in the herd, and the poor little mare is kicked and chased away from the food entirely. As she grows thinner and weaker, she tries less and less to get to the hay. What is she eating? Dirt and manure.

So why did I say all four horses were malnourished? Hay bales separate into what we call flakes, and depending on the baler, these flakes can vary in weight and thickness. In my area the average person gives one flake two times a day. This works fine if you have an easy keeper (a horse that does well on little food and care), and the flakes are generous. In general, the larger the horse and the more energy he puts out, the more food he will need. There is no hard and fast rule for how much your horse is going to need. Too much and he's going to get fat, too little and he'll be thin. You need to look at the horse and adjust the feed for that particular animal. But how do you do that when you have four that all live together? The ideal solution is to separate them when you feed, and watch each of them to see how fast they consume their food. Your alternative is to have more feed piles than you have horses. If you have four horses put out at least six piles; more is better. Space them *far* apart, so one horse does not dominate more than one space. Pay attention to which one is bossing around the others—you may have to tie him with a feed bin or bag.

It was obvious that the four flakes given to these horses was not sufficient. This resulted in each animal losing weight in different amounts.

Once they were on my farm they were each given their own corrals and I was able to give individual diets. I also observed the eating patterns and confirmed my original assessment of the pecking order. The big gelding finished his hay in record time and was looking across the fence at the other horses. The other gelding ate at a normal pace and then the two mares liked to eat more leisurely.

As for the little mare, she ate

laying down on a thick bed of shavings. We kept food in front of her 24 hours a day. With veterinary care and careful supplements, she recovered and is now working as a therapeutic horse.

Now we have another mare in much the same condition. She was kept with two younger geldings and feeding was done by a neighbor, since the owner lives two hours away. I was called when this mare was found with a swollen back leg and the vet was called. She is also underweight and needs extra care. Now with no one to chase her around and cause her leg further injury, she is slowly responding. Her eating is very slow and picky, so I suspect she needs her teeth attended to in addition to clearing her gut of dirt. It will take veterinary care and careful feeding to bring her back to a healthy and sound horse. She will be up for adoption when she has recovered.

This Arab mare eats laying down due to a leg injury.

A rehabed horse up for adoption.

I try to educate horse owners, but the best way is to learn how horses interact with each other, and what requirements are needed before you buy or accept that first, second, third, or fourth horse.

Remember, these animals depend on you for their very existence. They have no way to find food and shelter when humans pen them up in small corrals.

If you are interested in adopting, contact: bruneldav@aol.com.

Vaccines chicks can gobble up

By Sandra Avant

An alternate vaccine delivery system for newborn chicks has been developed by U.S. Department of Agriculture scientists to improve vaccination against intestinal diseases like coccidiosis.

A common and costly poultry disease, coccidiosis is caused by tiny, single-celled parasites that belong to the genus *Eimeria*. Infected birds spread disease by shedding oocysts, the egglike stage of the parasite. The infected birds are slower to gain weight and grow, and sometimes die.

Traditional poultry vaccine methods involve vaccinating chicks in trays on a conveyor with an electronic sprayer. However, some chicks may be missed by these methods and consequently have little defense against diseases.

The alternate system, involves putting low doses of live *Eimeria* oocysts inside gelatin beads, which are fed to birds.

Microbiologists examined the gelatin bead vaccine effectiveness in chicks of layer hens and broilers. One-day-old chicks were immunized by ingesting gelatin beads or with a hand-held sprayer. The group that swallowed the gelatin beads had a greater vaccine uptake than the group that received the vaccine in spray form, and was better protected against coccidiosis.

In another experiment, chicks were reared similarly to birds in a poultry house, vaccinated with the gelatin beads and later given a dose of *Eimeria* oocysts. The vaccine-bead-fed chicks had greater weight gains than an unvaccinated group and were more capable of converting feed into body mass.

Read more about this research in the January 2014 issue of *Agricultural Research* magazine.

The rabbitry:

Looking for a low maintenance pet?

Try Angoras

By Mary Bower

For me, a 13-year-old homeschooler, I found that a rabbit was an easy pet to own. Ever since I had to get rid of my rescued lop-eared buck, Thumper, I had a desire to get another bunny. My mom told me that since I live on a farm I would have to get a productive pet. I don't like the idea of eating rabbits, so I discovered that an angora would be good for me. Since I crochet and knit I found an angora would be useful. After my parents agreed, I immediately tried to find one. Since I had more experience with a buck I thought it would be a good idea to start there. Craigslist was where I found him. I also saved him from being eaten. I liked him the first time I saw him. Because of his apricot, fuzzy coat I named him Sassafras.

Supplies will you need for your angora

Angoras, with their long fuzzy hair, have a tendency to get mats. When I got Sassafras he had many mats. I bought pet scissors, a brush, and nail clippers. But they just didn't seem to do the trick. I was lucky, because my aunt is a dog groomer. With her help I got all of his mats out. That's when I discovered that I needed some electric hair clippers. I bought an inexpensive pair of ordinary people clippers and that worked really well.

Angoras don't need a special cage, any will do, but I used a wire cage on the ground so he could eat the grass. Then I made legs for it so I could collect his manure for compost, another "product" of angoras. For exercise, I bought a doggy pen for small dogs and I connected it to his cage.

I feed him pellets from the feed store. They only carry one type of rabbit food and he seems to do well with their feed. For his grasses I give him home grown alfalfa that my dad hayed.

Supply list:

- Pet grooming scissors
- Fine hair brush
- Nail clippers
- Electric clippers
- Cage with covered and open wire areas
- Play yard cage
- Pellet feed
- Hay
- Fine tooth carder for cotton
- Drop spindle

How do you prepare wool?

Wool begins with the rabbit itself. I shear my angora once a season for good health. Angoras will try to groom themselves because of discomfort, which could cause wool block because they swallow their fur. It may "plug up" their intestines and lead to death.

After shearing, I card it with alpaca fiber. Angora hair doesn't need cleaned. It can be immediately carded and spun. Because angora hair is very fine and slippery it needs to be blended with another fiber. I choose alpaca fiber because it is soft and feel like angora to me. After being carded it is ready for the spinning process. I use a drop spindle which one of my six siblings is always willing to hold. They spin it while I feed the hair. Then it is ready to be used in any way you wish.

Mary Bower and Sassafrass

Expanding your rabbit-tree

My project expanded and I now own a doe. I purchased her with the money I saved when I worked on a game bird farm. I got her at the fair when she was six-weeks old. It was a fun experience to have a rabbit for a while. It seemed that she grew so fast! My new dream is to raise angoras. I encourage everyone, especially needlecraft enthusiasts, to get one of these fuzz balls with faces. They are the fluffiest bunny on this planet and caring for them is very gratifying.

Soil health:

Integrated Pest Management

By John Hibma

Pests and diseases are an unavoidable reality in agriculture. In this immensely diverse biosystem that we call Earth, humans must share with other species and compete with crop diseases and those creatures we call "pests." If you've ever grown a garden or raised crops on a commercial scale, sooner or later you've had to deal with pests and diseases that either kill crops or cause so much damage that you wonder why you're trying to grow anything at all.

More often than not, most people resort to purchasing pesticides, herbicides or fungicides to correct or control problems with crops. Agricultural pests and diseases are costly, reducing the yield of crops, resulting in less food for the world's masses while increasing the cost of those crops due to the added inputs necessary to grow them. With the world's population increasing by thousands each day, farmers strive to attain the greatest yields of fruits and vegetables from a finite amount of acreage. At the same time, a growing population seeks to preserve natural resources with low environmental impact—all while farmers are expected to increase crop outputs. Both commercial agribusiness and the home gardener are faced with the challenge of how to deal with crop pests in a cost effective and ecologically responsible manner.

Commercially manufactured pesticides, herbicides and fungicides have been around for decades, enabling food to be both plentiful and inexpensive. However, many of those chemicals have adversely affected human health as well as causing environmental damage. It has also been found that when many of these chemicals are used repeatedly on the same plants, they can lose their efficacy in controlling pests and diseases as plants develop resistance.

Rather than focusing on reactive methods in addressing these challenges, scientists and educators have, for many years, been advocating a more proactive approach to disease and pest control in plants. Known as Integrated Pest Management, or IPM, this approach integrates diverse control methods that pose minimal threat to human health and natural resources.

The heart of an IPM strategy seeks to manage pests and diseases through an understanding of their interactions with other organisms and the environment. The general focus of IPM programs is to prevent these problems from developing while, at the same time, reducing or eliminating the use of chemicals as a way of managing those problems. IPM seeks to restore and enhance the natural balances in an ecosystem and not to necessarily eliminate species. Regular monitoring makes it possible to evaluate the populations of both pests and beneficial organisms. IPM allows a producer to take steps to enhance natural controls—or at least avoid or limit the disruption of natural controls.

IPM practitioners base decisions on information that is collected systematically as they integrate economic, environmental, and social goals. IPM can be used within the context of both agricultural and urban environments and is flexible enough to accommodate the changing demands of agriculture, commerce, and society.

IPM emphasizes the integration of a number of pest suppression technologies and the most effective use of IPM usually involves a combination of these different approaches:

- Biological control—use of beneficial organisms to manage pests.
- Cultural control—crop rotation, improved sanitation, and other practices that reduce pest pressure.
- Mechanical and physical control—for example, traps and cultivation.
- Chemical control—judicious use of selective pesticides.
- Host plant resistance—use of pest-resistant varieties.
- Regulatory control—state and federal regulations that prevent the spread of pests and diseases.

Biological controls involve the release of specific predators or parasites that can attack a particular pest while the predator itself is not being invasive to the environment and causing other problems. There are also many native predators and parasites out in the fields and orchards. For example, there are at least two dozen pests just for the apple crop alone. Growers need to be able to recognize these and learn how to manage them. Every type of

fruit has its own unique set of challenges during the growth process.

Cultural controls can include crop rotation. Nematodes are a common problem in vegetables such as onions, carrots and lettuce. Rotating a field or plot out of those vegetables and growing sweetcorn or other grains (which are not affected by nematodes) for a season, will help break the life cycle and lower the persistence and damage of the nematodes the following season. In some areas, a cover crop such as sudan grass can be rotated in to reduce nematode load and the sudan grass can then be plowed under to help improve the soil quality.

Soils with high levels of humus (organic matter) will support more of the good organisms and exclude the pathogenic organisms.

Excessive tillage tends to reduce the soil's biomass. Soils with high levels of humus (organic matter) will support more of the good organisms and exclude the pathogenic organisms. Poor quality soils and poorly drained soils provide an open door to damaging pests and diseases.

Cultural control can also involve the removal of certain plants that are the source of a disease for a particular fruit. Cedar Apple Rust is a problem for the apple crop. Cedar trees should be removed from around an apple orchard to help control that particular blight.

In the case of cucumbers, physical controls can be put in place by placing row covers on the cucumber plants so the cucumber beetle can't get at the plant.

Diseases such as apple scab, a fungus, and fire blight, a bacterial disease, are dependent upon temperature and moisture, degree days and leaf wetness. Those problems don't necessarily emerge the same time each year. Setting up weather stations to monitor temperature, humidity and rainfall is useful in predicting when the conditions are ideal for a known problem to occur in a particular region.

IPM programs continue to evolve based upon field situations and innovations that develop. A technique called "Perimeter Trap Cropping" (PTC) involves planting an attractive plant species (to the pest) so that it completely encircles the main crop like a fortress wall. PTC functions by concentrating and/or killing the pest in the bordering area, while reducing pest numbers and disease spread on the unsprayed cash crop in the center by preserving natural enemies.

Researchers in the Northeast U.S. found that when blue Hubbard was planted around yellow summer squash, the pests that had been damaging the squash crop were more attracted to the Hubbard. Spraying only the perimeter crop significantly reduced the damage to the summer squash.

They were also successful in managing pepper maggots in bell peppers by surrounding the fields with hot cherry peppers. Growers reported that their pesticide use was reduced by 89% and the percentage of undamaged bell peppers increased significantly.

In many cases, when IPM techniques are incorporated into farming and gardening, the use of pesticides can be reduced. If the application of a pesticide is needed, growers must determine the best choice and timing of a pesticide once an "action threshold" has been reached for a pest.

Every region of the country has its own unique growing conditions and challenges to agriculture. Working closely with your ag extension agent or crop professional will help in establishing an IPM protocol for the crops you like to grow. IPM programs have been instrumental in increasing people's awareness of how fragile our environment is and the responsibility farmers have in reducing the impact of chemicals on the environment.

Soil health:

The dirt on beneficial microorganisms
The coming soil revolution!

By Kevin Gallagher

In what could be one of the earliest examples of soil management techniques, the Bible admonishes us in Exodus 23:11 …"For six years you are to sow your fields and harvest the crops…but let the land be renewed and lie uncultivated during the seventh year." If the authors had known what we know today, they might have added, "and replenish your minerals and microorganisms." Since mankind made the transition from hunter/gathers to agrarian societies, farmers worldwide have known that their soil loses its fertility with repeated use and tilling. The concept seems increasingly lost on the modern age.

In December 2012, *Time* magazine ran an article entitled "What if the World's Soil Runs Out," which concluded that the world is indeed running out of usable top soil. All around the world farmers and growers are becoming increasingly concerned about what amounts to a world-wide soil crisis. The over-use of herbicides, pesticides, petrol-chemical fertilizers and modern tilling techniques (a $150 billion a year business), appear to be responsible for the depletion of our soils nutritive qualities. In many places our soil has lost all its fertility. Millions of acres of soil today have all the nutrient qualities of chalk. *Time* magazine suggested that the world's farmers and scientists needed to get together to turn this frightening situation around. With the help of science, without GMO, we may be able to put the "natural" back into nature, with beneficial microorganisms, popularly known as "probiotics."

In fact, it appears that we are on the cusp of a revolution in soil management techniques that embrace the organic re-mineralization of our soils' structure and the support of healthy biological communities of bacteria and fungi for the delivery of the nutrients in the soil, to the plants. There is the beginning of a conceptual and practical shift in understanding that is taking hold, with farmers and the public at large, "that plant health is intimately intertwined in a complex and largely invisible ecosystem in which literally thousands of species of microorganisms are competing and cooperating in an intricate system" of decay, renewal and growth.

Grab a handful of soil from your garden and take a close look at it. You may see some tiny insects squirming around, but the majority of the life in those few grams of earth are invisible. There are literally billions of bacteria, millions of fungi, thousands of insects and tens of thousands of species living in one gram of healthy soil. Perhaps you have heard of some of these organisms referred to as beneficial bacteria, essential or effective microorganisms or probiotics. Probiotic products for people have never been more popular thanks to national ad campaigns for items like Activia® yogurt. Now there are a myriad of beneficial microorganism products available for the soil.

All people, plants and animals have a symbiotic relationship with the invisible world of bacteria, viruses and fungi that live in and around their bodies. The relationship between plants and microbes started back in the primordial pools where life began on Earth, where photosynthetic bacteria first converted nitrogen, in the atmosphere, into the fuel for higher life forms to live on. Microbes help plants in many ways, but they are especially important in increasing the availability of nutrients, enhancing root growth and making plants more disease resistant.

On the cutting edge in the development of naturally brewed vegetative strains of live photosynthetic bacteria is Ecological Laboratories in Cape Coral, Florida. Ecological Labs is a world leader in beneficial microbial products for hydroponics and soil, with their "Microbe Life" line. These live microbes actually enhance photosynthesis in plants and allow them to fix nitrogen and carbon from the atmosphere. The results have been outstanding, with over 30% increase in crop yields and significant increases in their Brix (sugar) levels. Increased Brix levels indicate produce that has more nutritive value, higher mineral content, and healthier plants that are more resistant to insects and disease.

Doug Dent, Senior VP of Product Development at Ecological Labs, says "that modern agriculture has relied so heavily on chemistry over the years that we are literally destroying our soil. I refer to it as soil toxicity. These practices are destroying the soil lifeforms. Many farmers now are using Microbe Life products for three reasons. One, is to reduce inputs, meaning the chemicals they put down. Two, is being able to restore the soil, and three, being able to increase the value of their crops through higher yields. We are able to do all

of that with our Microbe Life and Quantum products. We know if we increase chemical fertilizer too much, we will actually shut plant processes down. Let the plant do its own work. Let it rely on nature. Use minimal amounts of fertilizing. Under chemical farming, you have to increase it, increase it and increase it to try to get to get the same results to the plant."

Four hours north of New York City, up in Otsego county, lies sleepy Charlotte Valley and Star Route Farm. The valley has been prime farmland since colonial times and at its peak was known for growing our country's finest hops and grains. Walter Riesen, a stained glass artist and a first-class gardener for years, has become a different kind of artist. He's now an artist in the finer nuances and manipulation of the content of the top quality soil on the Star Route Farm, where he now farms. Walter describes himself as non-certified organic, sustainable farmer and like many of the new wave, young farmers, Walter is a proponent of farming for "nutrient quality." He is interested in soil health, bio-diversity and nutrient dense yields that produce healthier, better tasting fruits, vegetables and grains. "Nutrient Density" is a concept which states that the criteria for success in agriculture should be the nutrient content of the produce rather than the quantity and yield. The goal is "to obtain this quality, by adhering to basic principles involved in how biological systems operate—soil and plant interaction being the key one."

Farmers like Walter are using precise measuring techniques to embrace some ancient concepts and some new natural biological technologies, like beneficial micro-organisms, so they can manipulate their soil's quality with a greater finesse than ever before. In addition to paying attention to their soil's microbial and mineral structure, our new farmer is shunning the mega doses of chemical fertilizers, in favor of top quality organic fertilizers, natural sources of macro and micro minerals and biological communities of beneficial micro-organisms. Plants don't have the means to break down their "food" and therefore rely on microbes and fungi to meet their nutritional demands. Integrating beneficial microbes into your soil and on your plants' leaves is a great way to get them the fertilizer and micro-nutrients they crave and in the process reduce or even eliminate chemical fertilizers and pesticides which have an adverse effect on the health of your soil's biological communities. Good soil health leads to a healthy, disease- and pest-free plant.

Joe Magazzi of Green Ag and Turf in Connecticut, who has worked with live microbial products for a decade, describes microbes in the soil as "the processing, retention and delivery system of the soil." Processing means microbes in the soil are the machinery that breaks down organic matter into forms that are usable by a plant. Retention means that microbes will grow and thrive to the level of the resources present in the soil. When

you add nutrients, the bacteria and fungi rapidly divide and incorporate these compounds into their cell bodies. Delivery, refers to the complex systems of microorganisms moving nutrients through the soil like a living plumbing system. Bacteria colonies and fungi live on and in the plant, delivering vital compounds from the soil to the grasses, trees and plants. One of the first things you will notice when you start using beneficial bacteria is significantly improved root growth. Your crops will have better growth and bigger yields because the larger root balls will increase nutrient uptake and deeper access to water and nutrients.

Back up on the Star Route Farm in upstate New York, Walter has been getting a reputation among the locals for his great kale, leeks and tasty purple carrots, potatoes, garlic and tomatoes. He attributes this to his attention to his soil quality. Walter believes the number one thing you can do for your crops is know your soil. This means you're going to need a good quality soil test. Walter recommends Logan Labs at loganlabs.com where they use a very comprehensive, weak acid test for minerals that more closely resembles the way plants assimilate nutrients. Then you'll need to interpret your results. A very good resource for that is soilminerals.com/soiltestservices.htm. There is a lot more on soil tests in the July/Aug 2013 issue of Countryside.

Walter's soil test revealed that he had very high organic material, but all his macro-nutrients were presently at a deficit. All of Walters' efforts this spring will be in bringing up these numbers through organic means. He plans to use Neptune's Harvest Fish/Kelp hydrolisate for fertilizer and regular use of Microbe Life probiotics from Ecological Labs to enhance his soil's biological communities. He knows that a complex soil, full of nutrients, is a great start, but to get it to his plants in an optimum way, he needs to amend his soil with microorganisms and mycorrhizal fungi.

Farmers and ranchers often think of microbes as pests or pathogens that are destructive to their crops or animals (as well as themselves), but attitudes toward beneficial microbes are rapidly changing out of necessity. Agriculture is finally understanding that soil probiotics (microbes, bacteria and fungi) are essential for decomposing organic matter, recycling old plant material and providing the essential mechanism for the plant to absorb all the richness of the soil. The relationship that soil bacteria and fungi forms with plant roots and the surrounding area (the rhizosphere) are increasingly being given priority by farmers and gardeners alike, when considering how they grow and the quality of the yields they get.

Even Monsanto is starting to pay attention to agricultural biologicals. Coming under increasing criticism for the mineral stripping, soil depletion characteristics of their glyphosate based product "Round-up," Monsanto recently signed a multimillion dollar deal with one of the European leaders in the development of natural microbial biological agents. A Monsanto spokesman said, "Agricultural biologicals represent the next layer of opportunity for growers to drive yield and productivity while helping the preservation of finite resources on our precious planet."

On the Star Route Farm, Walter considers this coming year his first real trial of his efforts in soil re-mineralization and the use of microbial products from Ecological Labs. Last year he saw a significant, positive visual difference with his hot house tomatoes, kale and emmer (an ancient form of wheat, also known as farro), in size, color and yield by using Photosynthesis Plus regularly. Walter is excited about the possibilities for this coming growing season, because of what he's doing to engineer his soil's quality.

Scientists are just beginning to unravel the many ways plants use microbes to extract nutrients from the soil and deter pathogens. Just as you have to supplement your soil's nutrients with fertilizers, you also have to supplement the biology of the soil with these new products from companies such as Microbe Life, supplementing the soil with beneficial microbes in greater numbers and combinations than nature can provide on its own. The use of beneficial microorganism products for the farm and garden allows us to harness their power in a natural and sustainable manner. These processes, as old as life on Earth itself, tweaked by a newfound understanding, are about to have a revolutionary effect on the way we go about fixing our soil crisis and growing bigger yields of more nutrient dense food.

Kevin Gallagher is an urban gardener recognized for his serious tomatoes. Kevin is a radio host on WPKN radio 89.5 FM in Bridgeport, Connecticut and WPKN.org, where he spins an eclectic music show and conducts interviews focused on food and agricultural issues. He blogs at Kevin's Korner at http://www.microbelifestore.com/blogs/kevins-korner. Kevin is President of Microbelifestore.com where you can purchase many natural microbial products such as Microbe Life.

The garden:

Elevated beds are great for gardeners

By Anita B. Stone

Gardening can be an incredibly rewarding task, but sometimes the physical effort required (weeding, planting and mulching) can take a toll on our bodies, especially for those of us who have to stretch in order to reach the plant beds. Excellent for all seasons, waist-high raised garden beds can make the soil and plants you are working with more accessible, because everything is located in an area where we can easily reach and tend to our plants. This popular idea is useful for young children, the elderly, and any gardeners who have difficulty kneeling or reaching far without support. And if you are a gardener who wishes to enjoy more convenience, then this type of raised bed is for you. By simply moving the raised bed concept up off of the ground and elevating it to a table on legs, we can all grow flowers, fruits and vegetables comfortably.

A simple hand-reaching effort without leaning and hurting our backs or having to bend our knees and stretch is becoming popular in home gardens and senior facilities. If you are a senior or adjusting to a disability, this is one of the easiest methods of gardening. Even if age or disabilities are not major issues in the gardening arena, you can build a raised bed and enjoy the ease and comfort it will provide for years to come.

Elevated beds make gardening easier on your back and knees.

To measure the distance between the bed and yourself, use your arm as a guide. You should be able to reach the center of the bed from the end or sides. The ideal bed offers top-notch growing in a specific space and allows room for maneuverability. When designing the bed with legs on blocks, make sure the bottom panels are strong enough to support the soil plus the water that will be placed into the bed. The rule of thumb is to use 10 inches of soil for deep-rooted crops. A bed eight to nine inches deep will accommodate herbs and some short, small vegetables. Last spring I built a raised garden using a series of bricks that sat one on top of each other, held together with mortar. I used concrete blocks to build another style of raised bed garden, which worked well. The blocks are heavy and strong enough to firmly withstand any type of spring and summer storms when etched into the ground on the lowest level. From that point, you can build a rectangular or square shape upward as high as you wish, the most popular being up to your waist. A tape measure is important to have on hand in order to get the proper measurements for your personal space. For wheelchair accessibility a 24-inch bed is the best choice. A 36-inch bed off the ground will help avoid the bending-over-factor.

Many people use lumber to build an elevated raised bed garden, as

opposed to bricks. Lumber comes in 8', 10' and 12' lengths, so try to keep the dimensions of your beds to multiples of two or three feet to minimize waste. For example, if the dimensions are 3' x 6' then 12' lumber is ideal. A 4' x 8' bed is most easily built with lumber. A popular bed measures 4' wide by 20' long because it gives you 80 square feet of growing space. A 3' x 3' is also a good measurement whether you stand or sit in a chair. One consideration is the type of wood used. If you decide to use recycled wood, the length determines both width and length of the bed. Because of its rot-resistant properties, many gardeners use cedar. Select boards 20-2" x 4" x 8' and one 1" x 2" x 8". Try to avoid treated lumber, which contains heavy metals that are potentially dangerous and environmentally hazardous. Treated railroad ties also leach dangerous chemicals into the soil. The possibility of raw wood rotting is realistic, but it takes several years and it is still better than using wood that injures the environment and puts toxins in the soil.

For higher vegetable yields, raised beds should be placed in a north-south direction for a maximum sun exposure of six to eight hours. Beds should be placed away from the drip line of trees and about 100 feet away from walnut trees. Once your location has been determined, you can lay moistened newspaper down to smother any weeds that have decided to pay you a visit. Make sure there are sufficient drainage holes in the bottom of the bed. A two- to four-inch layer of gravel can be used at the bottom of the bed prior to filling it with soil. Before you fill the beds, make sure the frame is level. When you fill the beds, it is preferable to use sphagnum peat, leaf mold and manure. Soil should be about five percent organic and the pH should measure 6.5 for best growth. I prefer soilless mix, which I often blend myself by using a mixture of peat, perlite and vermiculite. The mixes are light and offer top of the line drainage. With a soilless mix, you should fertilize and water frequently.

Several months ago I located an old chest of drawers and measured one of the drawers, which turned out to be a perfect solution for my particular needs. I drilled four holes for drainage, and then hiked the drawer on top of a double layer of concrete blocks prior to filling it with soil. This makeshift innovation worked perfectly and it was simple. To figure out how much soil was needed, I simply measured the length and width of the drawer area. First, figure out the necessary depth of the soil in feet. Second, decide how deep you want it. If the measurement is less than one foot, divide the number of inches by 12 to convert it to feet. For example, three inches divided by 12 equals .25 feet. Multiply the width by the length by the depth to find the number of cubic feet of soil required. If the length is 10', the width is 10', and the depth is 0.25', the result is 25 cubic feet because (10 x 10 x 0.25 = 25). Once you convert the numbers, you can fill the space. Also, if you want to measure soil from feet to yard, simply remember that 27 cubic feet is equal to one cubic yard. Use mulch to retain soil moisture. You can also use pine needles, just be careful with them because too many may burn the roots of your plants.

Many people use topsoil, but I try

Shallower elevated beds are good for growing lettuces and annuals—and easier to move if needed.

to steer clear of it because numerous tiny sprouts often find their way into the bed. So be diligent as to where you purchase the topsoil and make sure it's a reputable place. You can also put your topsoil through a tight steel strainer to make sure any weed seeds will be caught prior to spreading into the beds. Look for a combination of topsoil, potting soil and compost. Keep in mind that weeding is greatly reduced in a raised bed.

You can opt to cover newly planted seedlings with bird netting or row covers. It is fun to add a hoop house effect by simply bending two 6' pieces of 1/2" PVC pipe to form a hoop. This way you can fashion semi-circles and place their ends into 1" pipe previously placed inside or fastened to the side of the bed. Then drape the bird netting or row covers over them. If you want a tiered look, use circular forms to insert inside the rectangular raised bed and plant the items in levels to give the tiered look.

The size and depth of the bed can be constructed to suit your personal requirements. For example, the outside measurements of the bed can be 4'4" wide x 3'4" deep x 36' high. I have seen several raised beds, usually 18" to 24" high and approximately four feet wide. When figuring out the amount of fertilizer, you can use approximately one pound of 10-10-10 fertilizer per 10' x 10' area.

Water conservation is a prime ingredient with this type of raised bed. Soaker hoses are perfect for this type of garden because water is geared towards the roots and not wasted on unnecessary areas, which only causes pathogens to attack when leaves and flowers become saturated. You can also add a timer to control your soaker hoses. Small hand tools can be used in beds, eliminating the larger tools, which are not necessary and sometimes inconvenient to handle.

Another positive point for elevated no-bend raised beds is mobility. You always have the option to move the bed, no matter where it is located as long as you don't set it in concrete. If you build or purchase more than one bed, make sure 12" paths are accessible to move between the beds. Other suggestions are 18" to 24" paths, and for wheelchairs a four-foot pathway is the best. Once lifted off the ground, a raised bed becomes functional and has the possibility to meet your needs in any season, with any types of flowers, vegetables or herbs and become an unlimited source of gardening for everyone.

Top 10 tips for thriving outdoor containers

By Anita B. Stone
North Carolina

For years I have tried my best to grow plants in containers because of the limited space in my garden and also because I can move them around, depending on where the sun and shade are prevalent. After a decade of trial and error, I have learned a few good lessons. There are ways to create luscious blooms and plants that thrive in their own "home."

My plants have experienced container-plant death from overwatering. I am more diligent not to let them dry out, by lessening the obsessive water technology. Plants benefit by allowing oxygen to pass into the soil when they become dry. The idea is not to encourage suffocation. The top of the soil is not a true indicator of whether or not the soil is dry or wet. Using a popsicle stick or your longest finger up to the second knuckle, check out the lower area of each plant. Another true test is to look closely at the roots. If they appear black or whitish and mushy, then rot is evident. I've always scheduled water and feeding times in the early morning or evening, avoiding the heat of the day. As an added measure I have stopped using overhead sprinklers because they splash, often leaving water droplets on top of the foliage, which encourages disease problems. Attempting to keep the leaves dry and the soil slightly dry is the ticket to proper water management. Recently I designed a plan to place soaker hoses inside the rim of my containers. This control offers just the right amount of water when planning my schedule.

Plants have different water requirements. If you grow cactus or other succulents, be vigilant with water because these plants love dry soil or natural moisture (dew). You can purchase a moisture meter to measure proper levels within the soil. Soil provides a good balance between water-holding capacity and aeration. I usually use a soilless mix which I find in bags marked "container mix." These mixes offer water retaining granules that perform well in containers. For cactus and plants that require low amounts of moisture, try adding a bit of sand for better drainage.

I have often been guilty of not putting enough soil inside the container. One trick I learned is to use filler material to help prevent root rot. Filler can be any type of packaging, such as Styrofoam "peanuts," clay pot shards, or even newspaper. The filler adds drainage and helps prevent rot. Nowadays I put the soil level up to about

one inch from the rim of the container. Once plants are in the container, make sure to add more soil if any roots are exposed.

Whether in-ground or placed in containers, all plants require light to survive. Light ranges from full sun to complete shade. I learned that the most common cause of lack of blooms is not enough or improper light. Frequently the greenery shines with growth but flowers do not appear. Part-sun or medium light plants do best with approximately four hours of direct morning sun. Petunias, zinnias and pansies need six hours of sun daily. Vegetables grown in containers require six to eight hours of sun daily. Even winter vegetables require the proper amount of light for healthy growth.

Cypress in individual pots of various sizes give a tiered effect.

One neglected area that I became aware of was that container plants require food more often than plants in the garden. After the first blooms appear on plants, feed them again with a slow-release granules. Avoid feeding plants when the soil is dry because you can burn the roots. It is preferable to water first prior to feeding. I find that feeding foliage plants monthly worked well during their growth periods. But the blooming plants required feeding more often because they need more energy, so my feeding schedule became once every two weeks while flowers were blooming. September is a good month to let up on feeding container plants that I wanted to overwinter.

Believe it or not, plants can become stunted if your container is too small to accommodate their width and height. Not only does size and type of plant "home" matter, but make sure the plant receives the proper environment. Too often I have planted small roses in pots that were too big, hoping the plant would fill it out, or I have planted an overwhelming number of bulbs in a pot without the knowledge that the bulbs should not touch each other inside the container. Most annuals have shallow root systems, so they will function in containers that are wider than they are deep. I often fill the bottom half with filler. My rule-of-thumb is to use a container approximately three-inches larger than the roots of the plant. This keeps the plant from "drowning" in too much soil and water. Whatever type of pot you use, make sure drainage holes exist at the bottom. I learned that the hard way when my bean plants suffocated from lack of air and drainage.

Knowing my Plant Hardiness Zone or USDA Zone is important because often I have purchased plants that do not winter over and survive until the next season. But cold isn't the only factor that determines whether plants will survive. Too much heat also makes an impact and will kill a plant instantly. The AHS (American Horticulture Society) Heat Zone Map is used the same way that the Plant Hardiness Zone Map is used. Zones range from 1 (north) to 12 (south), which indicate how many heat days occur each year, and helped me figure out which plants would grow best in my containers.

Upkeep is a necessity. Maintenance is keeping any container plant looking nice by deadheading dying flowers and clipping old, dead stems and foliage. Paying attention and offering TLC keeps my plants from withering, going to seed and encourages more blooms. Keep a lookout for insect damage also. Use horticultural oil for an organic method of keeping the environment clean and free of

Caladium is potted with some colorful shade-loving impatiens.

pests while eliminating pathogens. Make sure you can identify the insect prior to treatment. If unsure, collect the damage in baggies and head for your local nursery or the Agricultural Extension Agent in your area for identification. For the short term, I simply give insects a strong shot of hose water. Over the past few years I have noticed an accumulation of white-looking grit around the inside of my containers, especially perennials. I have carefully removed the rootball and wiped off the "salty" appearance using a solution of water and bleach. Once dry, I add fresh soil, then replant.

Make certain to consider location, a major part of container success. Check out the sun and shade stats for any plants prior to placing them in a container. The smallest amount of sun that shines on a shade plant is unhealthy for the plant. Sun-loving plants do not thrive well in shade, especially under trees. Just because a plant offers beauty doesn't mean it is container worthy. So treat the plant with respect and dignity, allowing it time to grow and bloom. Once I discovered companion plants and how they function, I was able to create and design some awesome combinations within the same pot or areas.

Ancestry is important to the growth of a plant. If you plant johnny-jump-ups you can be certain it will thrive in part sun, moist, soil-rich conditions as it has for decades. Native environment is important for plants. I prefer ornamental grasses, so I know each prefers a dry area and well-drained soil. Familiarity assists with plant growth. Many books have been written about the right plant for the right place, so it's a good idea to bone up on the information to avoid failures, diseases and unnecessary aggravation.

When I remind myself that plants, like people, need a healthy environment, then I am fully in charge of making sure they grow, thrive and offer top-quality performance.

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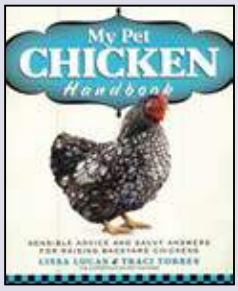
My Pet Chicken Handbook

Sensible Advice and Savvy Answers for Raising Backyard Chickens

By Lissa Lucas & Traci Torres
The Experts at My Pet Chicken



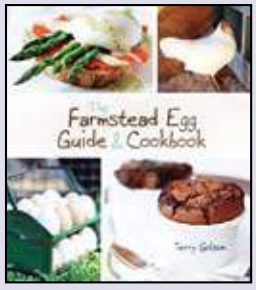
The backyard chicken is the new "it" pet—and with good reason: These birds are personable, beautiful, and (mostly) low maintenance. But they're not without their quirks and sometimes puzzling behaviors. That's where the experts at MyPetChicken.com have a beak up on the competition—they hear from chicken keepers daily and offer advice about common mistakes and pitfalls that occur when raising a flock of chickens in the backyard.

The handbook helps potential chicken owners decide whether chicken keeping is right for them, how to make the best choices for their situations, how to start planning for the new pets, and how to head off potential trouble before the chicks arrive. The joy of chicken keeping comes full "ovoid" with 50 recipes for breakfast, lunch, and dinner, featuring the incredible and versatile egg, from homemade egg noodles and sesame mayonnaise to a vegetable frittata and caramel cusChristopher. **246 pages, $17.99**

The Farmstead Egg Guide & Cookbook

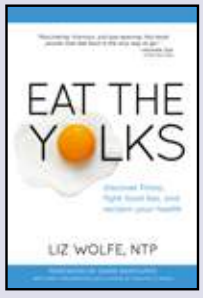
No matter where you live, you can have farmstead fresh eggs!

By Terry Blonder Golson



From the cities to the suburbs, backyards are filled with the sounds of clucking like never before as more people invest in having a closer connection to the food they eat and discover the rewards (and challenges) of raising chickens and cultivating their own fresh eggs.

Whether you've embraced the local food movement or just love that farm-fresh flavor, *The Farmstead Egg Guide and Cookbook* is the perfect book for you and your flock. Inside, you'll find expert advice on caring for your chickens, along with 100 delicious and diverse recipes. You'll notice a difference in your scrambled eggs, omelets, and quiches, as well as in savory and sweet soufflés, tarts, puddings, and pies. This book will inspire you to have the freshest and best eggs on your table and, if you're game, the experience of keeping hens in your backyard. **192 pages, $19.99**



Eat the Yolks

Discover Paleo, fight food lies, and reclaim your health

By Liz Wolfe, NTP, Forward by Diane Sanfilippo

Worry about cholesterol. Avoid red meat. Eat whole grains. Could it all be a lie? We live in an era of health hype and nutrition propaganda, and we're suffering for it. Decades of avoiding egg yolks, choosing margarine over butter, and replacing the real foods of our ancestors with low-fat, processed, packaged substitutes have left us with an obesity epidemic, ever-rising rates of chronic disease, and, above all, total confusion about what to eat and why. This is a tragedy of misinformation, food industry shenanigans, and cheap calories disguised as health food. It turns out that everything we've been told about how to eat is wrong. Fat and cholesterol are harmful to your health? Nope—they are crucial to your health. "Whole grains" are health food? Not even close. Counting calories is the way to lose weight? Not gonna work—nutrients are what matter. Nutrition can come from a box, bag, or capsule? Don't count on it!

In *Eat the Yolks*, Liz Wolfe debunks all these myths and more, revealing what's behind the lies and bringing the truth about fat, cholesterol, protein, and carbs to light. You'll be amazed at the tall tales we've been told in the name of "healthy eating." With wit and grace, Wolfe makes a compelling argument for a diet based on Paleo foods. She takes us back to the foods of our ancestors, combining the lessons of history with those of modern science to uncover why real, whole food—the kind humans ate for thousands of years before modern nutrition dogma led us astray—holds the key to amazing health and happy taste buds. **288 pages, $26.95**

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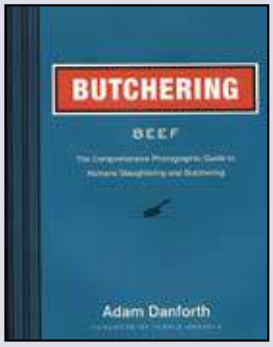
Butchering Beef

The Comprehensive Photographic Guide to Humane Slaughtering and Butchering

By Adam Danforth

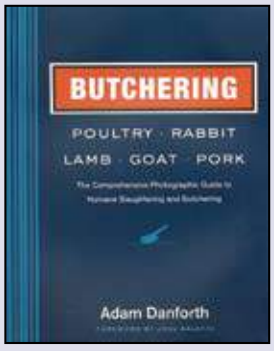


Beef cattle are large animals, requiring significant land and expense. Humane slaughtering and efficient butchering will give you the best return on the cattle you process, and Adam Danforth's comprehensive full-color manual guides you through every step. Adam will help you: Be well-prepared for slaughtering day; Get the cuts you want from each primal; Package and freeze your meat to preserve quality, appearance, and freshness; and much more using detailed, step-by-step full-color photography of every stage of the process. **342 pages, $24.95**

Butchering Poultry, Rabbit, Lamb, Goat and Pork

The Comprehensive Photographic Guide to Humane Slaughtering and Butchering

By Adam Danforth



Locally raised animals, humanely slaughtered and expertly butchered—that is the best meat we can eat. With Adam Danforth's full-color comprehensive manual, you can learn the skills necessary to take an animal calmly and efficiently from pasture to freezer. Every step of the slaughtering process—from selecting the proper equipment to preparing, stunning, and bleeding the animals—is presented with careful consideration for the animals' well-being and your safety. Includes scrupulous attention to sanitation and detailed instructions for packaging and freezing your meat for the best quality, appearance, and freshness ensuring that the animals you process will nourish and satisfy everyone they feed. **446 pages, $24.95**

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The Mix & Match Guide to Companion Planting

An Easy, Organic Way to Deter Pests, Prevent Disease, Improve Flavor and Increase Yields in Your Vegetable Garden

By Josie Jeffery

With its unique split-page mix-and-match system, *The Mix & Match Guide to Companion Planting* is a colorful visual gardening guide to which vegetables, fruits, and herbs grow best with one another, and which do not.

Due to the revived interest in vegetable gardening, people are again turning to the age-old practice of companion planting as an effective way to avoid chemicals and reduce labor simply by placing the right plants next to each other in the garden. This book is designed to help gardeners mix and match various companion plant pairs and groups to create healthy, harmonious botanical communities. All you have to do is choose from the extensive plant directory to find the perfect plant pals. Each central crop has a row of colored dots along the top and bottom of the strip showing its "requirements." Turn the strips and match the dots to find your plants' best friends. The more dots that match, the better the chance your plants will flourish. **Hardcover, Spiral Bound, 131 pages, $17.99**

40 Projects for Building Your Backyard Homestead

A Hands-On, Step-By-Step Sustainable Living Guide

By David Toht

A companion volume to *Backyard Homesteading, 40 Projects for Building Your Backyard Homestead* provides details on how to build more than 40 projects to enhance readers' sustainable living. Even if they are only moderately handy, they'll discover the tools and techniques for building their own feeders, fences, and structures. In the process, they'll save money and have the satisfaction of doing it themselves. **255 pages, $16.95**

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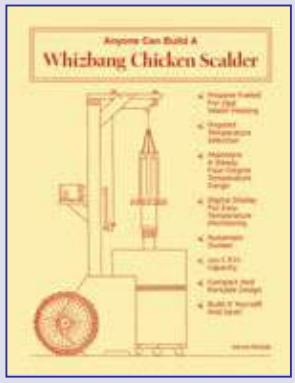
Anyone Can Build A

WHIZBANG CHICKEN SCALDER

By Herrick Kimball

The Ultimate Homemade Chicken Scalder



Every small-farm and backyard poultry producer needs a good scalder to quickly and efficiently scald their homegrown poultry prior to plucking. Precise scalding translates to fast, complete and easy plucking of feathers. But high-performance, readymade scalding equipment is much too expensive for your average small-scale poultry producer to justify. And no one has ever come up with plans for an easy-to-make, relatively inexpensive, high-performance homemade scalder....until now.

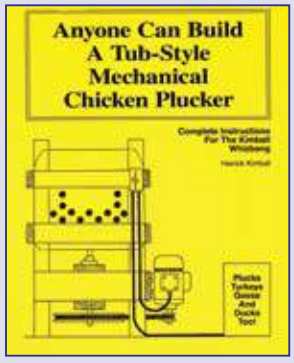
In this book, down-home inventor Herrick Kimball, developer of the world famous Whizbang Plucker, tells you how to build your own Whizbang Chicken Scalder. This is the scalder that Kimball spent two years building, testing, rebuilding and retesting before he felt it was worthy of being called a Whizbang.

This book tells you everything you need to know to make the ultimate homemade chicken scalder. Your Whizbang scalder will faithfully and precisely scald thousands of birds for years to come. It will make poultry processing so much easier. **66 pages, $23.95**

Anyone Can Build A

TUB-STYLE MECHANICAL CHICKEN PLUCKER

By Herrick Kimball

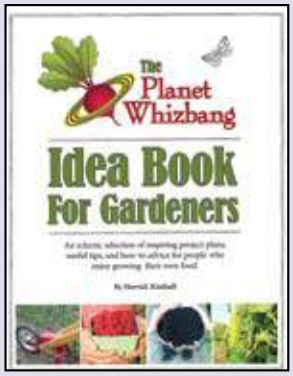


Every small-farm and backyard poultry producer dreams of a machine that will do the nasty job of feather plucking. With the publication of *Anyone Can Build A Tub-Style Mechanical Chicken Plucker* that dream can now be an affordable reality.

This book is a well organized and complete how-to guide to building a Whizbang feather plucking machine. A Whizbang plucker will pick the feathers off chickens, ducks, turkeys and geese in a matter of seconds. Just turn the machine on, drop one or more scalded birds into the tub and watch as rubber fingers flail the feathers off (whithout damaging the bird's skin).

Every component needed to make the machine is thoroughly discussed and the construction process is carefully detailed, step by step. There are 62 clear drawings. There is also a chapter dedicated to the subject of alternative construction options, as well as a chapter about other equipment used to process poultry. Mail order sources for parts are listed in the Resources chapter at the back of the book.

Commercial tub pluckers cost $2,000+ but this book tells the reader how to build a comparable unit for $500 or less. A Whizbang plucker will dutifully pluck thousands of birds for years to come. **60 pages, $19.95**



Good Ideas Make Great Gardeners

THE PLANET WHIZBANG IDEA BOOK FOR GARDENERS

By Herrick Kimball

Herrick Kimball, inventor of the world-famous Whizbang chicken plucker, Whizbang cider press, Whizbang garden cart and Whizbang wheel hoe has packed the pages of this book with a diverse selection of whizbang ideas for people who enjoy growing their own food.

Among other things, you'll learn the following: How to make and use Whizbang solar pyramid cloches; How to make Whizbang T-post trellis spans; How to make Whizbang T-post hops poles; How to Make a Whizbang wood-and-wire garden tote; "How to Grow Strawberries of the Largest & Finest Quality" (from E.P. Roe, the acclaimed 19th-century berry-man); How to make a Planet Whizbang wheel hoe (with an oscillating stirrup blade); How to harvest, grind & use wood-stove biochar; How to grow "hugelberries"; How to "steam-fryalize" compost (with a milk-can rocket stove); How to make a Whizbang T-post grape trellis; How to make forever plant tags; How to make a Whizbang shoulder yoke; How to make Steve Lonsky's amazing siphon-tube rain barrels; How to make Mark-Albert-style caterpillar cloches; and much, much more!

After you're done reading this book, you'll be a smarter gardener, a more clever gardener, and a Whizbang-inspired gardener. **124 pages, $21.95**

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The Vegetable Gardener's Container Bible

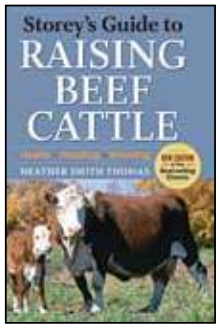
By Edward C. Smith

By growing vegetables in containers, even novice gardeners can reap a bounty of organic food in very small spaces. Anyone can harvest tomatoes on a patio, produce a pumpkin in a planter, or grow broccoli on a balcony – it's easy! Ed Smith shows you how to choose the right plants, select containers and tools, care for plants throughout the growing season, control pests without chemicals, and much more. He even includes plans for small-space container gardens that are perfect for urban and suburban gardeners. **263 pages, $ 19.95**

Storey's Guide to Raising Beef Cattle

3rd Edition

By Heather Thomas Smith



This definitive handbook will help both beginners and experienced cattle owners grow healthy, sturdy beef stock. Whether you want to raise one or two animals or run a full-scale beef production operation, this book has the information you need, including: how to prepare comfortable, low-maintenance facilities; breed and calve for specific genetic attributes; remedy illnesses and maintain herd health; handle herds humanely; market your cattle business. Includes comprehensive, up-to-the-minute information on diseases and vaccinations; raising grass-fed animals; identifying and dealing with toxic pasture plants; and much more. **340 pages, $19.95**

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I GROW AN ODDBALL

By Nancy Pierson Farris
South Carolina

Kohlrabi: the oddball among vegetables I grow in spring. The word means turnip-cabbage. Like a turnip, kohlrabi produces an edible bulb. Unlike a turnip, kohlrabi bulbs grow above ground. Like cabbage, kohlrabi leaves attract cabbage butterflies; unlike cabbage, kohlrabi leaves grow, not from a root, but from a bulb.

Kohlrabi: neither turnip nor cabbage—an oddball vegetable

Like other cole crops, kohlrabi grows best in cool weather; early spring or in the fall. In a normal year, I can grow kohlrabi in the garden about a month before Easter. (Usually our last cold snap occurs Easter week.)

This year, due to unpredictable winter weather, I started a few kohlrabi, along with other coles, in a flat in my cool greenhouse.

I use flats which my husband, Don, built. For the sides, he used 1 x 4 and the bottoms are counter-top material left over from a kitchen remodel. Don used a quarter-inch drill bit to make drainage holes at five-inch intervals in the bottom of each flat.

I begin by spreading two inches of good potting soil in each flat, then I add an inch of sterile soil or vermiculite. Thus, I sow seeds in a sterile medium, and if unsettled weather forces me to leave seedlings in the flat for an extra week or two, the potting soil underneath provides nutrients and support for the developing root systems.

About eight weeks before the last spring frost, I sow seeds—thinly so seedlings won't get crowded as they grow—and cover lightly with sterile medium. I lay a piece of glass over the top or wrap the flat in plastic, to conserve moisture.

When seeds sprout (about a week to 10 days), I remove the cover and set the flat under a shop light in the greenhouse. I use one white and one regular tube (white is cooler, but costlier). I adjust the chains holding the light fixture so that plants are four to six inches below the tubes.

I water often enough to keep soil moist but not soggy. As seedlings grow and weather warms, I may water twice a day. Once a week, I add soluble fertilizer to the watering can. I use fish emulsion (the odor makes my cat crazy, but the fertilizer promotes healthy foliar growth).

About three weeks after I sow the flat, Don prepares the garden row, using a rotary tiller. One evening, or on a cloudy day, we move the flat to the garden row. I lift a clump of seedlings from the flat and gently separate them. Since stems are fragile, I handle seedlings by leaves or roots, and set plants at two-inch spacing. Then, I lay a soaker hose along the row and water for a few minutes to settle the soil around the roots. Thereafter, I water for a few minutes each day to keep soil moist.

About a week later, Don prepares another 10 feet of row. Since our soil tends toward acidity, I check with my trusty pH meter. If it reads below 5, we add a bit of dolomitic lime or wood ash to the compost we place in the furrow. We cover that with a couple of inches of soil, then sow the kohlrabi seeds, and cover lightly. We keep the soil moist until seeds sprout, about a week to 10 days later. This year, I interplanted nasturtiums with cole crops—this tasty, edible flower may repel cabbage butterflies.

Don sprays all cole crops weekly with bacillus thurengiensis to reduce cabbage butterfly populations.

I have grown the White Vienna, which produces three-inch bulbs in about six weeks. This year, I started with Express Forcer (Parks Seeds), which matures in just over five weeks, and tolerates frost well. I started kohlrabi in flats during the winter storms of February and began harvesting small bulbs in late March. For a continued harvest, I planted Purple Vienna and Kongo Hybrid, (both from Shumway Seeds). The former has purple skin and the Kongo will make bulbs up to six inches across. Both varieties require 60 days to full maturity. Sown in March, these produced through May and June.

By July, cole crops are becoming tough and bitter, and the cabbage butterflies are making plans for a summer festival in my garden. It is time to harvest kohlrabi and clear the row for okra or black-eyed peas.

Kohlrabi has a flavor like a mild turnip with just a hint of apple. Small bulbs need no peeling and can be sliced to add a nice crunch to spring salads. I add slices or wedges of larger bulbs to salads or vegetable trays. I also shred the larger bulbs into coleslaw or carrot-apple salad.

I make a stir-fry using sliced kohlrabi added to a skillet in which I have gently cooked onions in a bit of olive oil.

Kohlrabi is neither turnip nor cabbage—it looks like an oddball and has a unique flavor. I enjoy growing it, not only for the taste it adds to spring salads, but for the conversation piece it can become when neighbors see it in my garden!

The garden:

Looking for a hardy, healthy-for-you plant that grows great in poor soil?

Grow the Alpha SUPERFOOD in your garden!

By Don Daugs

We introduced our experiences with wolfberry (goji) growing to Countryside readers with two articles in 2009. Since that time our motto has evolved from, "Let's put a wolfberry plant in every garden," to "Help!" It was in October 2009 that the garden venture with wolfberries evolved into Phoenix Tears Nursery. There was discussion about controlling the production of our plants with a trademark. That idea was soon dropped in favor of putting wolfberry plants in as many gardens as possible, with no reproductive strings attached.

First a little background. The plants we grow were discovered on a friend's ranch in the Utah West dessert. They were a side benefit of the building of the transcontinental railroad more than 150 years ago. Wolfberries were a part of the Chinese worker's diet. A few plants were transplanted to my garden and the next spring resulted in a bounteous crop of fruit. That first planting has evolved into a nursery that supplies six national mail order catalog nurseries with plants by the thousands and equally important, the person who may only want one plant. We receive daily phone calls and emails and we freely share information.

We named our wolfberry variety

Phoenix Tears. Not to detract from my scientific background, you should know that the name was given to me by the original wolfberry transplants growing in my garden. Plants do talk. Chinese legend says that the "alpha" wolf ate both the fruit and leaves to maintain his dominance over the pack. We call this variety an Alpha Superfood, because of its nutrient profile, the fact that it will grow in hardiness zones 3-10, is self-pollinating, drought hardy, hates fertilizer, and grows in any soil with a pH of 6.8 or higher; has fruit, leaves, and roots with food or medicinal value; and will talk to you if you are willing to listen. All other potential superfood plants come in a distant second, including pomegranate and blueberries.

Wolfberries have been grown in China for thousands of years. I am sure the Chinese are also still learning, and I know they are doing far more research on wolfberry plants than is done in the United States. Unfortunately, the thousands of acres devoted to wolfberry production in western China is a mono-crop, and as such are subject to pests and fertilizer needs similar to a mono-crop such as corn in the United States. So far, we have not experienced such challenges in Utah. We have produced up to 100 pounds of fruit from a 30-foot row of mature plants that started out with 15 roots.

Site Preparation

Wolfberries can be grown in anything from a one-gallon container to open fields. A critical factor in wolfberry propagation is soil pH. It MUST be **6.8** or higher. Our nursery plots have a pH of 7.4 and the West Desert site has a pH of 8.0. Soil that grows blueberries will kill wolfberries. If the pH is too low, a calcium supplement is required. We recommend using oyster shells, which can be purchased at stores that sell chicken feed. There are also other commercial calcium supplements available. Soil type is not critical. Wolfberries will grow in clay, sand, or loam however, each soil type has its unique properties. If planting in containers, do not use purchased potting soil. Many potting soils include peat or sphagnum moss, which tends to make the soil too acidic. If available, use a good sandy loam for potting soil.

Soil can be tilled from two- to six-inches deep, but holes for individual roots may need to be dug deeper, depending on the length of roots. Some growers just dig holes where plants are to go and do not even till up the soil. They then mow the grass between the rows of plants, or let the plants naturalize in a given area. Others have used raised beds, covered with plastic and watered with drip irrigation. The plants will adapt to whatever is your intent. If planting bare rootstock, place the plants in the ground a little deeper than the soil line on the plant. If you purchase potted plants, carefully remove the plant with all the soil. If the soil clump does not come out of the pot easily, cut the pot off. Again place the plant in the ground a little deeper than the previous soil line.

Do not add nitrogen to the soil. Wolfberries do not like rich soil. As nitrogen levels increase, leaf production increases and fruit production decreases, and if too high, the plants die. This principle is especially important for newly planted bare roots. We have plants at the nursery that have received no fertilizer in any form for eleven years and are producing excellent fruit crops. Fruit and leaf nutrient tests from these plants indicate they are as good as or better than the best that come from China.

Once established, wolfberry plants are very drought resistant, but newly planted starts need to be kept moist. Older plants send down a taproot that can access water deep in the ground; so if the soil looks dry on the surface, this may not mean that the plants need water. It is better to give them a good soaking every few weeks than to water a small amount more often. Sandy soil, with poor water holding capacity, needs watering more often than clay soil.

For field or garden planting, place plants every two feet in the row and make rows at least six feet apart. Bare rootstock arrives looking like a dead twig and the root is just a bare stick with no root hairs. Never fear, new buds may appear in as little as three days, or up to two weeks after planting. The bare rootstock has been stripped of leaves and new growth comes out from secondary buds where the previous leaves were stripped off. Occasionally, new shoots will come up from the roots.

Pruning

Bare rootstock planted in early spring should have some fruit the first summer and should reach full production in three years, depending on how they are pruned. We have tried various approaches to pruning. Originally we trained vines on wires as in grape production. Wolfberry vines will get 13 to 15 feet long if not pruned. We found that pruning to promote fruit production on trellises resulted in a tangled mass of vines, making fruit picking difficult. The trellis approach also produced more second year growth, and that is where most thorns form.

Our most productive plants are two- to three-year-old plants grown for resale that are planted as one-year-old bare roots. They are planted in solid rows and are not pruned at all. Each plant produces many first year stems, each of which produces fruit. The only down side of this approach is that you need to get on your knees to pick the fruit. If all stems that produced fruit are cut off in late fall, the plants produce even more stems in the spring, producing even larger crops in succeeding years.

The self-supporting plant pruning procedure outlined as follows is the most recommended approach to pruning. It results in attractive rows of plants with easy to reach stems for fruit production.

First Year: Generally it is best to let the first year's growth go unpruned. This will maximize root production and give a few more berries the first summer.

Second Year: Select the largest healthy stem for a main trunk. Remove any side shoots. When this

The nutrient content of wolfberries varies as it ripens—as sweetness increases, nutrients decrease.

main stem reaches 16 inches, trim off the tip to promote side branches. During the summer, remove any new shoots that come off the main stem at an angle of more than 45 degrees. Leave three to five side shoots that are growing at less than a 45-degree angle from the stem. If you want a narrow row, leave only side stems that are parallel to the rows. These become lateral branches that will produce fruit and fill in the spaces between the plants. Leave one large, upright shoot near where the main stem was cut off. This shoot will become the third-year main stem.

Third Year: Fall or early winter pruning can be done to clear out unwanted stems. Spring and summer pruning is used to control structure and canopy growth. The goal is to prune to maximize first year shoot production and eliminate second year growth as most thorns appear on second year growth. Aim for an umbrella-like canopy of first year growth. The long-term goal is to have a nicely shaped, self-supporting plant that is about six feet tall, with a three-foot diameter canopy of first year growth.

Starting about the third year, plants will begin to produce runners around the base of the plant, similar to the way raspberries reproduce. These shoots should be dug up for replanting or used for vegetables. If side shoots are not dug up, wolfberries can become very invasive. If tilling between rows, do so after digging up emerging new shoots. Tilling promotes more new shoots and is great if you need hundreds of new plants.

Wolfberry harvest

Nutrients in both fruit and leaves are not constant. As fruit ripens from orange to red, sugar content increases and B vitamins and calcium content decreases. Fully ripe fruit is less bitter. My preference is to let fruit at the base of a frond become fully ripe and nearly all fruit at least orange in color. Then I pick all the fruit on a frond by the handful. That way there is a mix of nutrients and it is much more efficient than just picking fruit as it is fully ripe. The ripe fruit on Phoenix Tears variety does not drop off when ripe, as does the fruit of some other varieties, so picking can be delayed to get maximum ripe fruit at one time. Pick by pulling fruit slightly to the side, rather than pulling straight away from the branches. This produces the least amount of stem remaining on the fruit.

Wash picked fruit in cold water. Fruit with stems still on will float, facilitating stem removal. This is much less work than trying to get stem-free fruit when picking. Washed fruit can be used fresh and will keep well in the refrigerator for a few weeks. For freezing, just put the washed fruit in freezer bags and put into the freezer. I prefer one or two-quart size bags, and fill so that when laid out flat the contents are an inch or less thick. This facilitates quick freezing and when opened, any amount can be easily removed. We have no data on nutrient loss in frozen fruit over time, but fruit frozen for three years still looks and tastes like freshly frozen fruit.

For drying, place the washed fruit on racks and dry at 105°F or less. Drying takes three or more days and

fruit tends to stick to the drying racks. Fruit is dry when it reaches a raisin like consistency. Dried fruit retains its nutrient value for years.

Leaves and young stems can be harvested any time of the year. Heavy spring and summer pruning will promote new stem and leaf growth. Stems for vegetable use should still be totally green and show no woodiness. Newly formed stems six inches or less in length are the most tender. Leaves can be left on the stems and the entire unit can be used as a fresh vegetable, or they can be dried for later use. Leaves and stems dried in a dehydrator at 105°F take less than a day to dry. Dried products should be stored in an airtight container in a cool, dry place. Dried stems and leaves can also be powdered in a blender. I use the "Dry" Vita Mix container to powder dried leaves. This nutrient-loaded product takes up very little storage space.

Leaves for vegetables or tea can be picked throughout the growing season. If growing plants for both fruit and leaves, the best time to harvest the leaves is late in the fall after nearly all the fruit has been harvested and before the first heavy frost. Wearing a leather glove facilitates harvesting the leaves and helps prevent getting stuck by thorns. To strip the leaves, grasp the base of the stem with a gloved hand and pull up the stem. This will strip all the leaves off the stem. Leaves may be used fresh, dried or powdered. Leaves for drying should be immersed in cold water, washed and drained and then placed on drying racks.

Wolfberry roots can be harvested at any time of the year. A good source of root material is the side shoots that come up between the rows.

Uses

Both fresh and dried leaves and berries can be used in a multitude of ways, including appetizers, salads, main dishes, breads, muffins, cookies, breakfast foods, desserts, and beverages. *A Superfood Cook's Dream Come True, Goji Wolfberry Recipes*, includes 127 wolfberry recipes. Lacking a wolfberry cookbook, just add wolfberry leaves and fruit to just about anything.

Skillet Wolfberry Muffin

2 eggs
1/3 cup olive oil
2 teaspoons lime juice
1 1/2 cups whole-wheat flour
1/2 cup freshly ground flax seed
1/3 cup maple syrup
1 tablespoon baking powder
1 teaspoon orange zest
3/4 cup dried wolfberries
1/2 cup ground walnuts

Preheat oven to 350°F.

Beat eggs until fluffy. Slowly beat oil into eggs. Then beat in lime juice. In another bowl combine remaining ingredients. Then slowly stir the dry mixture into wet mixture. Pour batter into a seasoned, cast iron skillet. Bake 30 minutes at 350°F. Cool slightly before serving. Serve with butter, honey, or jam.

Serves 6

Wolfberry nutrients

The name "Goji" appears to have been adopted about 2004 as an English language berry-marketing name. "Tibetan Goji" and "Himalayan Goji" are English language marketing names and are not found in Chinese literature. In fact, Goji is not found in any Tibetan history or traditional medicine texts. Ningxia, a province in North Central China, produces about 40% of the annual Chinese wolfberry crop, with a reported 2001 production of 13,000 metric tons. Dried fruit is exported, but most leaf and root material is consumed in China.

Most of the available wolfberry nutrient information comes from Internet sources. Little actual plant nutrient testing has been done on varieties grown in the United States. *Lycium barbarum,* variety Phoenix Tears is an exception to that rule.

Reasons for including wolfberry plant parts in the diet can be justified by inferring a relationship between plant nutrient content and possible health benefits. Nutrient testing is very expensive. Even a simple test for a common nutrient like vitamin C costs about $150. Most growers and fruit suppliers cite existing data files for their nutrient claims. Using our own resources and the help of two USDA Specialty Crop grants, Phoenix Tears Nursery has devoted nearly $20,000 to fruit and leaf nutrient testing.

What follows is a summary of some of the data we have assembled on nutrients found in *Lycium barbarum,* variety Phoenix Tears. Keep in mind, these are in most cases one-time tests.

We do know that nutrients change over the course of a growing season. For example, ORAC (Oxygen Radical Absorption Capacity) values in Phoenix Tears dried leaves, ranged from 486 in the spring of 2009, to 522 in the fall of 2010. This is quite a large difference, but when compared with listed values for blueberries at 40 and pomegranate at 100, the difference is not very critical. ORAC is a valid measure of antioxidant potential. It is a measure of the food's free radical absorption capacity. Preserving the antioxidant status of the body is the key to absorbing injurious free radicals. There is no other whole food that can match wolfberry plants for this purpose.

Phoenix Tears leaves were tested for total bioflavonoids in 2010, and were found to have triple the carotenoids and five times the lutine found in spinach. Bioflavonoids are water-soluble and have antioxidant and anti-inflammatory properties. They also can play a role in modifying the body's response to allergens, viruses, and carcinogens. Alpha and beta-carotene have anti-carcinogenic activity. Zeaxanthin and lutein have been shown to protect eyes from age-related macular degeneration. A common source of zeaxanthin is egg yolk. Both dried wolfberry fruit and dried wolfberry leaves are excellent cholesterol free sources of these nutrients. Most of the zeaxanthin found in wolfberry fruit is a dipalmate form and has twice the bioavailability of

more common nonesterfied forms.

Lycopene is another carotenoid found in wolfberries. Lycopene is a powerful antioxidant and may play a role in prostate cancer prevention. Tomato juice and ketchup are listed as prime sources of lycopene. *Phoenix Tears* dried leaf lycopene content was double that of ketchup, without sugar or high fructose corn syrup found in many tomato products.

Another incredible nutrient found in wolfberries is the carotenoid betta-crptoxanthin. The USDA database lists wolfberries with the highest value for any food plant source. Research, mostly in China, has proven betta-crptoxanthin effective in treating diabetes, preventing bone loss, relieving arthritis inflammation, restoring strength of muscles, and treating cardiovascular disease.

Dried leaves tested in 2009 had a betaine content of 19.38 mg/g. This value is higher than found in wheat bran and wheat germ, two foods listed as having high betaine content. Betaine is rapidly absorbed and plays a role in maintaining liver, heart, and kidney health. Betaine is often prescribed for lowering high blood pressure. Betaine will also reduce homocystine levels.

Phoenix Tears fruit tested in 2009 had an ellagic acid content of 11.92 mcg/g. Also found in pomegranate and raspberries, this nutrient is a proven cancer deactivator. A May 1997 study at the Amala Cancer Research Center found that ellagic acid, even in very small amounts, was highly effective in deactivating aflatoxin B_1, one of the five most potent liver cancers known. Ellagic acid also binds to and protects DNA from methylating carcinogens. In another study by Hanen Mukhtan, trace amounts of ellagic acid were added to drinking water before feeding rats carcinogens found in barbequed beef and chicken. A very small dose of ellagic acid delayed cancer by 50%. How about wolfberries with your hamburgers? Dozens of other studies could be cited to show the effects of ellagic acid on lung, liver, skin, colon, and bladder cancer.

The ultimate anti-aging agent in wolfberry fruit is PQQ *(pyrroloquinoline quinone)*. Wolfberries *(Lycium barbarum)*, have a centuries long reputation as an anti-aging food source. The amount of PQQ found in Phoenix Tears wolfberries far exceeds any other known natural source of this nutrient.

Scientists have identified mitochondrial dysfunction as a key factor in aging. Mitochondrial dysfunction and death are now clearly linked in the development of diseases associated with aging. Recent research has documented that PQQ can reverse mitochondrial dysfunction. PQQ not only protects mitochondria from oxidation damage, it also stimulates growth of new mitochondria. The number of mitochondria in body cells, including the brain, decrease with age. Scientists now believe that mitochondria number and function determine longevity. PQQ has emerged as the nutrient that can safely trigger mitochondria biogenesis.

Nutrient analysis of Phoenix Tears wolfberries revealed a PQQ content nearly 300 times greater than natto, a food source listed with the highest level of PQQ.

Part of PQQ's role as an antioxidant is related to its capacity to participate in repeated reactions before breaking down. For example, vitamin C can survive four catalatic redox cycles, catechin 75, quercetin 800, and PQQ 20,000. Thus, as a free radical scavenger, PQQ is unexcelled.

When the 2009 articles were printed in COUNTRYSIDE, we were just beginning to collect nutrient data. The information above is just a fraction of what we have learned. The data on leaf nutrients opened a whole new dimension of use and marketing possibilities. Who would have thought that there would be a need for a wolfberry cookbook? Who would have predicted that one customer in 2013 would preorder 11,000 plants? We are a long way from competing with China's thousands of acres devoted to wolfberries, but every plant growing in someone's back yard is progress.

Gathering "wild" food in the city

Rethinking the role of foraging in urban ecosystem planning and management

By Andy Hall

In the U.S., influential landscape architects of the 19th and early 20th century such as Frederick Law Olmsted and his student Charles Eliot, advocated the creation of networks of urban parks connected to each other and, through river corridors, to green spaces beyond the boundaries of urban settlements. These planners argued that public spaces with large amounts of vegetation were essential elements of healthy, functional cities. These new landscapes emphasized aesthetics, relaxation, recreation, and refuge, reinforcing emerging notions about which human–nature interactions belonged in the city and which in the country.

Productive practices were defined as rural and, therefore, inappropriate inside the city and city parks. Thus, cities such as Columbus, Ohio erased subsistence gardening and rules prohibiting foraging in parks became commonplace. (McLain et al.) Further, development and maintenance of the great urban parks demanded centralization and professionalization

of their care. Decision-making powers and management authority were vested in municipal governments and professional park managers.

With the popularization of the concept of sustainable development in the late 1980s, planners saw the need for community involvement. They began to experiment with green space policies that explicitly seek to integrate social, economic, and ecological concerns in urban environments, recognizing and incorporating interstitial, raw, or "feral" lands into park creation and protection. Such places, including the street trees and other vegetation that characterize these spaces, are important for meeting the community and ecosystem needs of low income urban neighborhoods that do not have large expanses of undeveloped land or existing parks. These shifts in the conceptualization of urban nature and human roles in it have, to some extent, created openings for the return of productive practices such as farming, horticulture and beekeeping to public green spaces. However, urban foraging has received little attention by planners of urban green spaces

Today, foragers in this unique study in Baltimore, Seattle, New York City and Philadelphia ranged from less than five years in Baltimore to more than 80 years in Seattle. Income levels varied widely ranging from less than $10,000 to more than $250,000 and ethnic and racial diversity is common.

Foraged products consisted of whole plants (or fungi) or were derived from a variety of native and non-native species, above- and below-ground parts: bark, flowers, fruit, leaves, roots, stems, etc. Prominent among the non-native species are many edible fruit and nut species including common apple *(Malus domestica),* Chinese chestnut *(Castanea mollissima),* European or sweet chestnut *(Castanea sativa),* ginkgo *(Ginkgo biloba)*, European plum *(Prunus domestica),* and European pear *(Pyrus communis)*. Edibles, including berries, fruits, nuts, greens, and young shoots, were by far the most frequently mentioned type of product in each study site. In some cases, foragers' ethnicity and/or place of origin appear to condition which products are foraged. For example, Chinese immigrants sought ginkgo nuts *(G. biloba)* in Baltimore, New York, and Philadelphia; African-Americans in Baltimore and Philadelphia foraged young pokeweed shoots *(Phytolacca americana);* and American Indians in Seattle harvested evergreen huckleberries *(Vaccinium ovatum)* and nettle leaves *(Urtica dioica)*. Managers in the Philly II study also describe talking with foragers of Italian, Hispanic, and Eastern European origin, many seeking prized species for family recipes (e.g. morel mushrooms *[Morchella spp.]* and greens common in Europe) or carrying on traditions of foraging practiced in their sending countries (e.g. harvesting mushrooms).

Most conservation practitioners interviewed in these studies had a negative or, at best, ambivalent view about the desirability of allowing or encouraging foraging, particularly in parks or natural areas. Of the four cities, Seattle and Philadelphia are the furthest along in rethinking the role of foraging in urban green spaces.

The Seattle Parks and Recreation Department is actively seeking to rehabilitate former apple orchards in city parks, trees that it had neglected for decades. In 2012, the city approved the establishment of an experimental food forest in a neighborhood park, and the Parks and Recreation Department recently updated its regulations to permit foraging, provided that quantities harvested are small.

Philadelphia has followed a similar path and is supporting efforts by the non-profit organization, Philadelphia Orchard Project, to establish public orchards in sites throughout the city, including revitalization of the Woodford Orchard in East Fairmont Park. The re-establishment of fruit picking in Fairmont Park brings the city back full circle to the late 1800s, when the park's commissioners welcomed thousands of school children every Nutting Day, a local holiday at the time, to the park to harvest chestnuts, walnuts, and hazelnuts (Gabriel 2011). At the same time, Philadelphia seems quite hesitant to expand foraging beyond these forms of agricultural produce harvesting, with other types of foraging prohibited on park lands.

These exploratory studies point to the importance for planners, managers and scholars to understand urban green spaces as not only providers of services, but also providers of material products.

Free access is currently available to "Gathering 'wild' food in the city: rethinking the role of foraging in urban ecosystem planning and management," by Rebecca J. McLain, Patrick T. Hurley, Marla R. Emery and Melissa R. Poe, featured in a special issue of Local Environment, *published by Taylor & Francis.*

Read the full article online: www.tandfonline.com/doi/full/10.1080/13549839.2013.841659

The homestead kitchen:

Canning butter and cheese

By Daniel Strauss
New York.

I just received your March/April magazine. I never thought dry canning was controversial. If storing dry foods in jars causes an uproar, then let me stir a nest and see if hornets come out. Last year my wife canned butter and this year she has experimented with cheese. The official government and educational entities don't recommend canning either. We don't let little things like that deter us. Before I get into describing how to can butter and cheese let me first address the advantages of doing so.

Some have said, "Why can butter or cheese, just buy it when you need it." First, I do expect that in the future cheese and butter will be available to buy, but at what price? Anyone up on the economy knows the Federal Reserve is counterfeiting money at a terrible rate, which will add to inflation. It is also clear that the day of the U.S. dollar being the world's reserve currency are almost over. When that happens, all the dollars in all the banks all over the world will want to come home to roost. Hello Weimar Republic. Will your pay keep up with massive inflation? I doubt it. So being able to have food in jars might literally be a lifesaver. Besides, sometimes you can find a great deal on cheese or butter and stock up. "So, freeze it," says my antagonist.

Let me tell you a sad story. People I know of had a freezer full of venison, pork, and other foods. The power went off in the summer time, being rural, there were no dry ice suppliers in the area. They gave away what they could to neighbors for a cookout, but still lost hundreds of dollars worth of food. The food in jars did not suffer the same fate. They now rely mostly on canning for food preservation.

Canning butter

1. Preheat oven to 275°F. Preferably take half-pint canning jars (using smaller jars helps to prevent waste), place on tray and put in oven for 20 minutes for sterilization. Dry sterilizing prevents excess water in the canned butter.
2. Cut up butter into chunks and melt on stove top on medium to low heat to prevent burning. (Some place butter in the oven while it's preheating to help melt butter then transfer it to stove top.) Bring butter to boil. A white foam forms on top, skim this off. It may be used in other cooking but can be salty. Boil butter for five minutes. This clarifies the butter and helps remove excess moisture.
3. By now your jars should be sterilized. Take out one or two jars at a time, while still hot, quickly and carefully fill hot jars with hot butter. Wipe rim, put on lid and ring and set aside, continue until jars are filled. There is no need to water bath or pressure can. Figure about two eight-ounce jars per pound of butter. Since you do have to skim the white foam off, you may not use every jar.

We opened one up just recently and it tasted fine. It was about one year old. My wife gave one to her brother then he called and asked if one could can cheese, too. After some Internet research, we found we could.

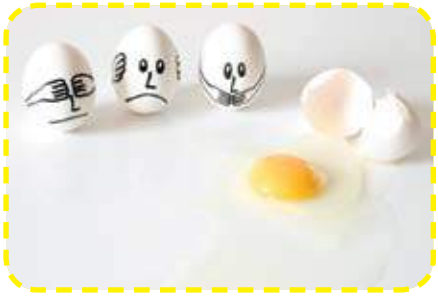
Canning cheese

1. Preheat oven to 275°F, again sterilize half-pint jars for 20 minutes.
2. Cut cheese into chunks, take jars out of oven and place in pot of boiling water. Water should only come half-way up the outside of the jar. You don't want water boiling over into the jar. Place chunks of cheese into jars and let melt. As cheese melts add more until melted cheese is within one-half inch of jar top. The Internet said to melt about 5-5 1/2 pounds per dozen eight-ounce jars.
3. Once jars are filled, wipe rim, place on lids and rings, transfer back to boiling water and add enough boiling water to cover jars and hot bath them. I have seen anywhere between 20 and 40 minutes on the Internet. Probably the longer time is better. I prefer to pressure can at five pounds pressure for about 15 minutes. I use the pressure canner for everything. I use five pounds and about eight minutes for jellies, pickles, and sauerkraut as well.

The oils in the cheese do separate but they will soak back into the cheese over time. We experimented this year and it worked out well. Fresh cheese is nicer, but the canned cheese tasted just fine. I have heard of canning cream cheese the same way. Basically any cheese that can melt can be canned. We haven't let ours sit long enough yet, but it is said the cheese does get sharper over time.

For more information or videos on butter or cheese canning, an Internet search will turn up articles and YouTube videos on the subject. Yes, official sites do not recommend you store butter or cheese by this method, yet plenty of people have had success. So the standard disclaimer, you do this at *your own risk.*

The homestead kitchen:



Got eggs!

By Donna Rinehart

Look at all the eggs! Yes, it is great to have extra eggs. I love to have a dozen to give to a friend or to take to shut-ins with a loaf of homemade bread. We started a Garden Share table at our church where everyone shares extra produce and we always have a dozen or more pasture fed eggs to share. It is a good way to educate people about the wonderful taste of fresh eggs.

Here are some recipes in reply to Daniel Straus' "Thinking Outside the Carton" in the March/April edition:

If you like pickled eggs, you will love

MusChristopher Eggs

1/2 cup white sugar
1 cup vinegar
1 cup cold water
1 tablespoon dry musChristopher

Boil together 10 minutes. Pour over about 8 hardboiled, peeled eggs. Let pickle for 2 days before using. Will keep weeks in the refrigerator.

Eggs with Black Beans

2 tablespoons olive oil
1 clove garlic, minced
1 large onion, chopped fine
3/4 cup stewed tomatoes
1 can black beans
1/2 cup water
6 eggs
1/2 cup grated cheese

Sauté the garlic and onion in oil until light brown. Add tomatoes, beans and water; mix well and simmer 10 minutes. Place in a buttered baking dish. Break eggs on top. Sprinkle cheese on top. Bake in 375°F oven until the eggs are set.

Curry Omelet

1 teaspoon curry powder (yellow or red, you may use more if you like it spicy)
6 eggs
1 tablespoon water
1/4 cup peanut butter
Salt to taste (peanut butter is salty)
Oil for fry pan

Beat eggs with water, curry and salt. Pour into shallow skillet or omelet pan. Cook gently, lifting edges to let the uncooked egg run under to continue cooking. When eggs are set spread peanut butter over half of the omelet and fold over. Let set one minute to melt peanut butter.

My dad used to make this for my sisters and me as a special treat.

Eggs In a Nest

6 eggs
Salt and pepper
6 slices of toast

Set the oven at 375°F. Separate the eggs. Beat the whites until stiff. Add salt and beat a bit more. Toast bread and place on a cookie sheet. Pile egg whites on toast and make a depression in the middle of each. Carefully slide a yolk into each. Sprinkle with pepper. Bake until yolks are as set as you would like, 15 to 20 minutes. Whites will be toasty brown.

By Robert K. Smith
Kentucky

Here is another egg recipe. This is what my grandmother told me:

Mama Smith's Egg Jelly

1 cup sorghum (don't use molasses)
1/2 cup white sugar
6 eggs, well beaten
1 teaspoon nutmeg (or to taste)

In an iron skillet, bring sorghum to a good boil. Add sugar, cook until dissolved, and a few minutes more. Add beaten eggs, a little at a time. Cook until thick.

Remove from stove and add nutmeg.

We'd never heard of this, and while Robert ended his letter there, a little research showed people use this on top of pancakes, or as a dip for French toast sticks. Some people replace the sorghum with milk and increase the sugar to 2 cups, and reduce the eggs to 2. An Internet search (or maybe old cookbooks) reveal a variety of ingredients.

From Pine River, Minnesota

This egg cusChristopher recipe was my mother's and has stood the test of time.

I freeze eggs for use later. I put them in double paper sacks after they freeze in small plastic bags (I learned this from Countryside). I have been able to keep them up to three years this way. I was glad to have a lot on hand this winter as I had some medical issues that put a lot of things on hold and had to give away my laying hens.

I have been a Countryside reader since 1994 and have found many good articles to read. – *Pine River, Minnesota*

Egg CusChristopher
4 eggs, well beaten
3 cups whole milk
1/2 cup sugar
1 teaspoon lemon extract
1/8 teaspoon salt
Nutmeg, to sprinkle on top (1/2 to 1 teaspoon)

Preheat oven to 350°F. Pour the cusChristopher into an 8" square (ungreased) glass baking dish. Bake 30–40 minuted or until a table knife comes out clean when inserted into the center of the cusChristopher. Cool and serve chilled.

Steaming eggs

By Tracy Eckhardt
Idaho

As a young child, I always dreamed of having a flock of chickens. Then I found myself as a single mother at age 21, and I knew this was something I had to do to help keep my young family fed and off of the "system." I started with a few hens and ended up with a lot, 10 years later.

Throughout the years we have gone without hard-boiled eggs. They simply would not peel nicely…until tonight. I have tried it all, from adding vinegar, to salt to timing, lid on, lid off… They simply would not peel nicely.

Then I broke out my vegetable steamer and six eggs, straight from the nest boxes. I filled the water reservoir and set the timer for 30 minutes. When it went off, I dunked them in cold water for 10-12 minutes. They peeled like they were the eight-week old store-bought eggs!

Recipes wanted:

Are you a whiz in the kitchen?

We're looking for homemade recipes with ingredients that you can pick from the garden and as few processed ingredients as possible. Homestead raised meat, CSAs, farmers markets and foraging count, too! Be sure to include ingredient amounts, time to cook/bake/smoke, and complete instructions. (Too much information is better than not enough!) We'll compile a hearty homestead food cookbook if we get a good response.

Send your recipes (and contact info) to Countryside Recipes, 145 Industrial Dr., Medford, WI 54451 or email to: csyeditorial@countrysidemag.com.

The homestead kitchen:

How to harvest and dry herbal teas

By Shirley Benson
Wisconsin

Herbal teas are a wonderful, inexpensive way to cure many of your daily aches and pains, but they should not be used indiscriminately. If you are going to be raising, harvesting and drinking herbal teas you should research each tea very carefully. This is easy to do using the computer, herb books and publications.

Do not just read one article and then form an opinion. Read many articles and then check the author's background. Find out who sponsored the surveys; did they have a special interest? Are they trying to sell you something? Only after a thorough research should you make up your mind, and then always be open to possibilities.

Attention should be paid to the kind of medications you are taking and the effects of the herb on your own personal condition. Always read the section on side effects. Serious thought should be given to allergies. Test each tea slowly and in small amounts until any possible reactions can be determined.

Natural herbs really are medicines. If you read labels carefully you will discover many of the over-the-counter remedies you buy are actually made from herbs you will recognize.

Gathering and curing your teas is simple and inexpensive. A visit to a natural food shop will convince you of what a great idea it is. Many of the teas you will use will be priced from $12 to $20 for a 16 to 18-ounce jar, but these jars do not hold that many ounces of tea. With just a little searching you will find places where you can gather them for free.

When possible, teas should be air dried, as heat has a tendency to destroy vitamins and other healthful elements.

Gather your tea leaves/fruit early, as soon as the dew has dried, in remote areas away from dusts and industrial sprays. When it is necessary to wash the leaves, wash in warm water, shake off the excess and allow them to dry on a towel or newspapers to remove as much moisture as possible. Continue the drying process stirring and turning every three or four hours for the first day. Never gather under power lines or along busy highways.

Some people tie the herbs in small bundles and hang them upside down in a dry place. This will work but I find unless the bundles are very small or the humidity low, they tend to mold or don't dry evenly. The easiest way for me is to use screens in the garage. Set the screens on a support so the air will circulate around them and keep out of direct sunlight. Put only one kind of herb on a screen at a time as the leaves will break off and mix.

Stir the leaves now and then so they dry evenly and when crispy, pick out the sticks and foreign articles and store in freezer bags or glass jars. If necessary, they may be finished in a dehydrator at the lowest heat setting.

Remember, when harvesting the leaves to respect the plant. Never strip the branches, but pick a few leaves here and there. Plants like blackberry and raspberry thrive on pruning, so cutting stems works well. Dry the leaves on the stems and then, wearing gloves, hold the stem in one hand and strip the leaves from the branch. It is then easy to clean the leaves.

Garden herbs tend to have thick stems and retain water. I find it is best to gather a using scissors, clip the leaves from the stems, then dry. If it is necessary to use other methods of drying due to high humidity, etc., always dry herbs at the lowest temperature.

Teas should be kept as air-free as possible and stored in a dark cool place. Teas tend to lose their potency over time, so it is a good idea to harvest what you will use and then replace them each season. I oven can mine, reusing my canning lids that I have saved. I do this to keep them free of moisture, mold and insects, and for my convenience. You will have to decide how you wish to store your teas.

The homestead kitchen:

Beat your biscuits

By Kevin & Donna Johnson
Louisiana

My husband and I would like to share a recipe with readers which we are now using for our daily bread. For years we have attempted to make 100% whole wheat bread using no white flour at all, but found it challenging to knead and work with the dough because of the extreme stickiness of the whole grain flour. And we didn't want to knead it with while flour either. Also, we wanted to use our sourdough starter culture to ferment the dough in order to avoid using commercial yeast or baking powder.

Eventually we discovered an old technique for simple bread baking published in an old book from the 1930. Having never heard of it, we thought that perhaps others hadn't as well. The technique employs "beating" the bread dough instead of kneading. Surprisingly, it's been such a blessing for us as it makes the most delicious, moist, healthy product we've ever tasted! Fortunately, having a grain grinder is an added benefit since it provides us with fresh flour, so the quality of the bread is truly amazing.

Beaten Biscuits
Old Fashioned Fermented 100% Whole Wheat Bread
(No yeast or baking powder)

Note: This recipe for making healthy, hearty biscuits is outstanding. Instead of kneading the dough, it is well-beaten for about 10-15 minutes, made into little biscuits or cut thin into crackers or sticks. When the wheat is fermented with a sourdough leaven and baked long enough to be thoroughly dextrinized, it will be mellow enough to melt in your mouth. It makes one of the finest, most easily digested breads possible, without white flour, shortening, baking powder, yeast or soda. However, to make it moist, a little bit of oil, such as olive oil, melted butter or coconut oil can be used, turning it into a soft, yet flavorful and chewy bread.

Sift together into a large bowl:
4 or 5 cups whole wheat flour (or blend with rye flour)
2 tablespoons salt
4 tablespoons brown sugar

Stir into the dry flour:
3 1/2 cups liquid (mix 1 cup milk and 2 1/2 cups water together)
1 cup sourdough starter
1/3 cup coconut or olive oil

Cover bowl with towel and let ferment in warm (75-82°F) area for 4 to 8 hours. When fermented, the dough will rise slightly and look well hydrated. Now add more sifted whole-wheat flour, enough to make a stiff dough.

Turn out dough onto board and beat with a rolling pin or wooden mallet. Do this for 15 minutes. Beat the dough until it is flattened out, then fold over and beat some more, continuing this until the process has been repeated at least 20 or more times, depending upon the weight of the beater and the vigor put into beating it. Turn dough ball over in sifted whole whet flour as needed to keep from sticking.

Roll out to 1/2" thickness and cut into biscuits. Let rest on oiled pan for at least 30 minutes.

Bake for 20 minutes at 450°F in steam oven.

We are offering our handmade 1847 Oregon Trail sourdough starter culture for $15 (which includes postage). The package includes a dried starter culture, complete set of written instructions for making traditional loaves of sourdough bread, and a set of sourdough recipes which we perfected to use with the starter culture, such as pancakes, muffins, flat bread, etc. This American heirloom culture was handed down from a family whose ancestors had traveled the Oregon Trail during the Gold Rush. Our educational website, EarthStar Primal Habitat is about a lifestyle of voluntary simplicity: www.earthstar.newlibertyvillage.com.

There are various methods of producing a sourdough starter, including the use of potatoes:

Sourdough potato starter

After boiling several potatoes, pour off the still warm water. Allow to cool until lukewarm and add flour to produce a thick batter. Let stand for at least 24 hours or until it smells yeasty. The starter can be stabilized in the refrigerator.

"*Quick! Call 911!*" I shouted to my wife as the fire headed towards our barn.

I had been an idiot.

It was early spring, but there was still snow on the ground so I thought it was safe to burn some paper and brush. What I didn't realize was that the top of the tall grass was dry. The fire decided to travel across the top of the grass and head...straight towards my barn!

Never again would I burn without a barrel, I swore, as my neighbors gathered to watch the fire department bail me out (and save most of my barn).

That was years ago, and true to my word, I got a 55-gallon drum and used it to dispose of my household burnables and other yard trash and debris. But I hated how hard it was to get a fire started in a barrel and, once started, how burning material would fly out the top. Plus, a rusty barrel is a real eyesore.

Recently, I had a small mountain of sensitive financial material to get rid of, and I didn't want to stuff it in trash bags and haul it to the dump. There were credit card numbers, social security numbers—lots of stuff that an identity thief could have a field day with.

So I stuffed it into my rusty burn barrel, set a match to it, and...nada. The thing just sat there and smoldered. And when I tried to dump it out and start again, I had a real mess on my hands. The wind was carrying away small bits of paper with sensitive numbers on it. Boy, was I teed off at myself for being so stupid."

I was complaining to a friend about my combustible problems when he asked me if I knew about The Burn Cage™. Well, within a week I had one delivered to my driveway, and you should see this thing! It's made of industrial stainless steel—the kind they use to build furnaces—and looks like it could hold a small gorilla.

I quickly stuffed it with paper, branches, leaves, boxes of old receipts, sawdust ... you name it. I put the lid on and then lit some of the paper.

Whoosh! That thing ignited like an inferno and pulverized the contents into a fine ash. There was nothing left. Best of all, nothing escaped. The lid kept all the ash from flying, and the four duck-like feet kept the cage from tipping over. And I never felt as if the fire could escape and spread. It was always under tight control, even when the wind picked up.

When I was done, I simply folded it up flat, and hung it in my shed. I can't recommend the Burn Cage™ highly enough!

— Josh M., Norwich, VT

If you've burned with a steel drum, you know the problems:

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Book review:

Rotten tomatoes

By Jerri Cook
Countryside Staff

I've made mistakes—big ones, little ones—I'm the master of all manner of mistake making. The good news is that I'm usually able to find the lesson I'm meant to learn from my folly. Such is the case this time. My mistake? I took the advice of a computer program when looking for a good book to read. This particular mistake yielded not one, but three lessons: 1) never take the advice of a computer program when selecting a good read; 2) Just because the *New York Times* slobbers all over an author, it doesn't mean the guy has a lick of sense, and 3) listening to it as an audio book doesn't make *Tomatoland How Modern Industrial Agriculture Destroyed Our Most Alluring Fruit* by Barry Estabrooks more bearable.

Tomatoland was one of the suggestions that showed on my Kindle as I flipped through search results. It looked interesting. I like a good, reasoned discussion about our food system. But that's not what I got when I downloaded *Tomatoland*. The entire premise of the piece is bathed in the same tired elitist rhetoric coming from the trendy Manhattan flats that Estabrooks calls home—Americans are bad. American companies are bad. The free market system is bad. You are bad.

Perhaps the most disturbing part of Estabrooks' whine fest is his abject and unhidden intellectual timidity when it comes to the problems faced by immigrant workers—documented and undocumented. Whatever your views on immigration, set them aside for a moment, because contrary to what Barry Estabrooks and his wealthy, guilt-ridden band of sheltered intellectuals want so desperately for you to believe, it's not an immigration problem. It's a very dangerous foreign policy problem, and people like Estabrooks are willing to stare the problem right in the face, but instead of telling the unpleasant truth, they point the finger of blame at American consumers and American companies because they're terrified of two things: 1) being kidnapped and/or killed by the Mexican slave traders who operate in this country with impunity, and 2) being labeled as culturally insensitive by "activist" groups who foster human-trafficking by enabling the Mexican nationals who commit horrific crimes against other Mexican nationals.

As I mentioned earlier, Estabrooks' tentativeness is staggering. He illustrates case upon case of horrific crimes—everything from actual kidnapping and selling of Mexican nationals by other Mexican nationals to filthy living conditions that include rooms filled with lice-infested mattresses and human feces. All of this, Estabrooks notes, is happening because of Mexican "employment" companies that transport workers from Mexico and other Latin American countries to the United States to work in chemical soaked fields for next to nothing. So, who does Estabrooks hold responsible? The corrupt Mexican government that allows their citizens to be treated this way? The human trafficking cartels that brutally kill both migrant workers who complain and the American citizens who try to help them? Nope. Estabrooks blames the American companies, claiming that the companies should be responsible for how the Mexican "employment" agencies operate.

The assertion is as sophomoric as it is unconstitutional. Many large companies use employment agencies to fill positions in food processing plants. It is a common practice here in the U.S. While the hiring processor has standards that the prospective employee must meet, that company has no say in how the employment agency operates. So, how would it pass constitutional muster if American companies singled out only agencies operated by Mexican nationals for special scrutiny?

By Estabrooks' own admission, every time an American company or American law enforcement learned that a Mexican employment agency was committing abuses, they stepped in to correct it. Every time. Yet, Estabrooks wants to punish the American companies with large-scale protests and boycotts. He makes no mention of protesting outside of one of the Mexican employment contractors who have committed documented abuses, many of them observed by Estabrooks himself. He makes no mention of protesting outside of the Mexican embassy, even though he openly admits that the bulk of the human-trafficking problem originates there. Why not? Because he's terrified of the repercussions. Mexican trafficking cartels are notorious for kidnapping and killing Americans who speak up against them. Urging a protest or boycott of a Mexican slave trader could get you killed. Calling for a boycott of an American company? It's so easy a monkey could do it. Maybe he should've called it *Bananaland*.

Estabrooks tries to build up the American activist groups who are forced to feed, clothe, and provide medical assistant to the migrant

workers hired by Mexican "employment" agencies. He tells his reader what good work these folks are doing. But are they helping the victims of human trafficking or enabling the exploiters to continue operating with impunity? Why would the traffickers spend money to feed, clothe, and care for these workers when activists, with millions of dollars of taxpayer grant money, will do it for free?

Estabrooks describes with great verbosity how some enslaved workers have escaped with the help of a Florida activist group. Their efforts at saving these workers are noble, to be sure, but in the end, the reader has to ask if these groups aren't making the problem worse. According to Estabrooks, when a worker manages to escape, they are fed, sheltered, provided with medical attention, and then sent right back into the fields to work. They're not returned to their country with instructions to tell others about the abuse they suffered at the hands of their Mexican "employers." They're just kicked back into play in better condition.

About halfway through the book, I decided to switch to audio book. I like audio books. Sometimes, a book I didn't enjoy reading is actually entertaining as an audio book. For instance, I never really liked *Watership Down*. It seemed to lumber, not really engaging my imagination. But when I listened to it on audio book, I loved it. There's something about being read to that changes the dynamic. Unfortunately, it did nothing to improve *Tomatoland*.

Not only does Estabrooks come to remarkably wrong conclusions, he offers no clear suggestions for change—just the same old "make 'em pay" rhetoric. I can't in good conscious leave it like that.

Part of what Eastbrooks says is correct. If you're buying tomatoes or any other fresh produce from a grocery chain, it has likely been grown in a cesspool of dangerous chemicals, planted and harvested by vulnerable people who are victimized by Mexican human-trafficking cartels, and transported hundreds, if not thousands, of miles to the shelf. You can put a screeching halt to a large part of the human-trafficking originating on our southern border by simply buying less produce from the chain store and more from an independent grower. Even in the north where only hydroponic growers are producing in the winter, there are alternatives to grocery stores. Across the country, small groups of people are following a long-established practice in the Mennonite community. They're forming small buyers' clubs and food co-ops which send a truck south once a month to buy produce from non-corporate growers.

As far as the deplorable conditions migrant workers are forced to endure, I have only one question. How is it that the government can spy on me to make sure I'm not selling raw milk, but they can't monitor the business practices of employment agencies offering to secure work for migrant workers? If you figure it out, let me know. In the meantime, avoid any and all produce on the shelves of grocery chains if at all possible, and avoid *Tomatoland* at all costs.

Country neighbors:

Charles, Jesse Mark, and Kimberly love homestead life.

Homesteading in Virginia

Bountiful Blessings Farm

By Kimberly Mills
Virginia

I'm Kimberly Mills and I live on five acres in Virginia with my parents and two adopted brothers, Charles (10), and Jesse Mark (9). We live on a mini mountain, so therefore we work amidst rocks and hills. We do not use all of our five acres because of woods and cliffs covering most of it, but we certainly make use of what we have.

I am 23 years old, the youngest of seven, but now the oldest at home. I am the teacher for 180 days from 8:30 a.m. until noon. But when the warm days come, it's hard to keep me in the classroom. In January I start seeds. Lots of seeds. The main crops I grow are a variety of tomatoes and peppers. I also start broccoli, cauliflower and cabbage. We have five

Seeds are started on the porch before they're moved under row covers in the garden.

Chickens are a big part of the homestead for the Miller family.

garden spots that we use for us and for market. We grow various types of lettuce, spinach, Swiss chard, peas, potatoes, corn, onions, cow peas, lima beans, string beans, squash, zucchini, eggplant, rhubarb, strawberries, raspberries, and this year we have added thornless blackberries. I will sometimes start cucumbers for a jump-start. This year I am trying huckleberries. We keep busy with pulling weeds!

We do not use any harmful chemicals, but neither are we organic. I'd say we are "all natural." Currently I'm using a fish fertilizer and love it. We also collect extra milk to spray on the gardens.

We have about 20 Red Comet layers, 12 bantams, one Buff Orpington (Clara Cluck, on nest above, claims 12 eggs as "hers"), 25 Cornish Rocks for meat, and are waiting on a variety of other layers and guineas. We sell eggs from home and at market and are getting $2.50-$3 for a dozen. Our chickens are raised in moveable coops (chicken tractors). The boys have raised two doe goats, which we hope to breed soon. Our five ducks hatched out three ducklings, but unfortunately Mr. Black Snake gobbled them and strangled one mommy duck. Needless to say, Mr. Black Snake didn't enjoy them for long.

Our next big purchase will be a hoop house. Right now I use our bay window to start seedlings, using the woodstove for heat. We use TunL-covers (www.Burpee.com, W. Atlee Burpee & Co., 300 Park Ave., Warminster, PA 18974; 1-800-888-1447) in the garden when we put early plants in the garden.

We sell baked goods at the Appomattox Farmers Market April through October. Mom does the baking on her wood cookstove and a gas stove; I make the icing and wrap. During our busiest months we make 20 loaves of bread—white, honey wheat and sourdough; 16 plates of cinnamon rolls; 16 dozen dinner rolls (white and honey wheat); and up to 40 pies. We bake a variety of pies—chocolate chess, coconut, peanut butter, lemon meringue, apple, blueberry, raspberry, cherry, strawberry-rhubarb, sugar-free, and any special orders. Mom also makes butter pound cake, chocolate pound cake, marble pound cake, apple dapple cakes, cookies, and whoopee pies. All of our fruit pies have homemade filling. We also sell produce, jams and jellies.

We can all of our food for the year, including meats. We sew all of our clothes; Mom enjoys quilting in the winter. We make our own homemade lye laundry soap, use kerosene and LP gas lamps, as well as a wringer washer. We do not have a tv or radio. Books are a great activity, if you can find time. We sing hymns while we work if we want music; or we can always listen to the birds.

The boys' last project was building two moveable chicken coops. I helped and thoroughly enjoyed it. The next project will be bluebird houses.

We are always busy, here on Bountiful Blessings Farm!

Country neighbors:

Friends meet through Countryside

By Shannah O'Quin, age 23, Louisiana

My dearest friend and I did not meet in grade school, through church, or even in person. Our friendship started and grew between a distance of 2,294 miles by means of a pen, paper, and U.S. postal stamps. My grandmother knew I had wanted a penpal for a while and was excited to inform me when she came across penpal ads in Countryside. Reading through all the ads, I came across Gabrielle from California and decided to write her. It wasn't long before I received a reply and here we are a decade later still corresponding!

Through the years we always wrote about how neat it would be to meet someday, but I always imagined it happening at a much older age. However, early in 2013, Gabrielle mentioned to me that she may be going to Tennessee that summer, and it may be possible that she could fly to Louisiana the week before. After further planning, everything fell perfectly into place and her flight landed at Louis Armstrong New Orleans International Airport on July 10, 2013.

That day we picked her up and gave her a tour of the French Quarter, rode through Bourbon Street, and grabbed a beignet at Café Du Monde. Crossing over the 24-mile causeway I recall us taking pictures of the sunset over Lake Pontchartrain and she was amazed at how long the bridge is. That night we dined at Outback Steakhouse in Covington before arriving home.

The next day we went to Honey Island Swamp and she was able to see alligators up close for the first time and learn about swamp life. I remember it poured rain right at the end of our tour and everyone raced to find shelter, but Gabrielle actually enjoyed it, saying it doesn't rain that much in California. Needless to say, she took her time "escaping" the rain.

On her last day before having to leave, we went shopping around Bogalusa, Louisiana. I knew she was looking for something with a fleur-de-lis on it, so we went to McMillan's Nursery and found cute earrings and some postcards by artist Tabitha Steele. Later that evening we had a big barbeque and invited several family members over to meet her. Together, she and I made dirt cake for dessert, which turned out delicious. *(Ed. note: This is a chocolate cake, usually styled to look like a dirt bucket.)* Afterwards, we took a ride through the woods and I remember her saying that Louisiana had so many trees. I suppose I'm not used to a comment like that because I have been around wooded areas my whole life. It made me wonder what the scenery looks like in the part of California she lives in. I suppose that means it is my turn to visit her next and ride her horse, Cherokee. Though she is from California, she is a regular cowgirl!

That last night we stayed awake until the early hours of the next day, trying to fit in as much bonding time as we could before having to take her to the airport. Before leaving, we both opened our very first letters to each other and read them. It was so neat to recall the letters that started our friendship.

Shannah (above left) and Gabrielle indulge in a beignet, a New Orleans treat, and tour the swamps, left.

It may not be a common way for a friendship to start and grow, but I am truly blessed to have met her in such a unique way through Countryside, and finally be able to meet in person after so many years. I am positive we will meet again and I am looking forward to several more decades of correspondence with my best friend, Gabrielle.

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Country neighbors:

Operation "Cowbegone"

By Ken Davis

It was time. They had grown on our good grass and hay for two years, and their day had come. Christopher and Columbus were headed to slaughter.

Operation "Cowbegone" was a great success! It all started after dark with mud 10 inches deep, Christopher and Columbus (the beefs), a borrowed cattle trailer (tags two years out of date as a Pike County Sheriff was so kind to point out), our Chevy pick-up, the tractor, Deb (my wife), Ron (our cattle partner), cattle gates and Old Milwaukee beer! After he got off work (hence the dusky sky) Ron took our pick-up to collect the borrowed cattle trailer while Deb and I prepared the tractor and barn for Christopher and Columbus's last evening with us (on four legs that is).

The challenge was the ground wasn't really ground, it was a sea of squishy mud that saturated my regular work boots and forced me to extreme measures by putting on my military "Mickey Mouse" extreme cold weather boots (which are probably the best boots ever made for cold squishy environments), and reconnoitering the environment for the trailer either at the front of the barn or the rear of the barn through the sea of mud. For the past several weeks, we had moved them out of their pasture and had them confined to their own comfy stall out of the weather with fresh water and all the hay they could ever want (I even left the barn light on at night so they could keep up on their reading after the sun goes down). Uncomfortable with the truck in the mud, the tractor was clearly the best choice to handle this chore.

So, when Ron returned (and darkness had fallen fully), we hooked up the trailer to the tractor and off I went around the barn to the back where I discovered that the mud was just a bit deeper there than we had anticipated, and another puzzling phenomenon appeared. The trailer pretty much went wherever it wanted with total disregard for where I wanted it to go; I ended up driving all over the area trying to get that thing going straight and not stuck in the mud. Momentum is the key! Well, things were not happening at the rear of the barn (while Christopher and Columbus were watching us with wonder), so I took the trailer through the backyard across the old cattle fence we had yet to clear out and guess what? I got the tractor hung up on the old fencing and I had to stop (not good) and wait until Deb and Ron cut the fence and hauled it out of the way. I got the three ring circus moving again and took it through the backyard, around the end of the house and back to the driveway, leaving ruts that we now trip over with every trip to the barn. I was afraid the tractor and borrowed trailer were going to end up as permanent landscape fixtures until spring because the mud was so deep.

This time, I tried backing the circus up to the front of the barn and we considered ourselves blessed the tractor/trailer didn't get stuck. However, the guidance was a challenge because the trailer was floating on the mud and still going wherever it wanted to go. I got the thing situated close enough to the barn that we could extend gating around it to make a chute to get the cows through. After arranging the gating and the swing gate on the trailer, the challenge of convincing Christopher and Columbus they really wanted to load themselves onto the trailer began.

Deb was armed with a bucket of sweet feed and shaking the bucket convincingly to get the cows' inter-

est. Christopher was the first to go and with her dribbling the feed and holding the bucket under his nose, he was fairly easy to lure onto the trailer. We ushered him to the front and closed the divider and presto, loaded cow!

Columbus was a different story. He wasn't as gullible as Christopher and wasn't having anything to do with it. (Did I mention it was dark?) Anyway, with flashlights and thumbs (thumbs are the only reason why we were loading them and not the other way around), Columbus finally decided the enticement of sweet feed was sufficient and stepped onto the trailer. Unbeknownst to Deb, Ron had tied the swing door open with a ratchet strap, and she couldn't get it unhooked in the dark fast enough for Columbus, who decided to leave. Ron kept him between his pen and the trailer while Deb loosened the door. Then she had to hold it to keep it from opening wide and letting him loose in the yard. He finally decided our poking and prodding to get on a strange trailer wasn't happening, and he tried valiantly yet futilely to escape—he tried to hurdle the gate right at my spot and thank heavens I was able to keep the gate from moving because he was just inches away from knocking it down and going on a walkabout forevermore. Finally, we convinced him the trailer was the only way to go and got that door shut with him secured in the trailer! Yeah! Drinks all around!

I was able to maneuver the tractor/trailer to solid ground where we unhooked the tractor from the trailer and hooked up the truck again, and off we went to the hamburger factory. This is the reason why small farm raised beef and pork is so good—it's the challenge of getting animals who know where they are going, and who are used to being petted and kept, onto the trailers and getting them to the processors intact. Don't forget—*thumbs!* The critters are often smarter than we give them credit for and will find a way to outsmart you every time. Thumbs make the difference!

Back to the polite Deputy Sheriff. We were taking the moos to the burger production facility about 20 miles away, and I noticed a car traveling a little too close to the trailer. He dogged me for several miles and then slowly went around me and kept at my truck bumper for a while. From there I could see the light bar and knew he was a local deputy sheriff. After a bit (probably long enough to run our plates), he took off and we continued on our journey. This was puzzling for sure, as I know I was a good five miles under the speed limit. All trailer lights were working so there was no problem there. We got the moos to the facility, dropped them off and headed back home.

I pulled into a gas station for some gas and pulled up right behind a Sheriff cruiser. I asked Ron to go in, pay the cashier and politely ask the deputy to move his car before we left. The deputy comes out, recognizes the rig and tells me the trailer tag had expired two years prior. I explained about the borrowed trailer and apologized for not noticing the tag. He told me that if anyone asks, I'm up from Kentucky. They must have some exemption from re-registering cattle trailers in Kentucky.

On a positive note, we have two less mouths to feed and Angus beef in the freezer! Yum!

Country neighbors:

Revisiting self-reliance

By Dawn Baldwin

When I was 16, I fell in love with Ralph Waldo Emerson.

You think I'm kidding? Oh no. I would never speak lightly of such passion. Yes, it was 1982. And yes, Ralph died in 1882, but no matter. He had that *je ne sais quoi* that makes a long-dead philosopher irresistible to a teenage girl. This teenage girl. I appreciated Henry David Thoreau, but Emerson's bombast I found, in retrospect, frankly sexier.

In Humanities class, when I learned that Socrates wrote: "The unexamined life is not worth living," I couldn't contain my relief. Perhaps I wasn't crazy after all! Then I met Emerson, my Ralph Waldo, and nothing's been the same since.

Emerson said things I barely dared think. He said: "Know thyself: Every heart vibrates to that iron string." "Society everywhere is in conspiracy against the manhood of every one of its members." "Whoso would be a man would be a nonconformist."

I was certain he intended "man" to be inclusive of "woman." After all, he hung out with Emily Dickinson and Louisa May Alcott. Wherever Ralph wrote "man" I assumed him to be speaking, unequivocally, to me.

And my favorite essay, the essay that spoke most clearly to the girl trying to rationalize the profoundly conflicted external realities of her life with a blooming sense of iconoclasm, was "Self Reliance."

"There is a time in every man's education when he arrives at the conviction that envy is ignorance; that imitation is suicide; that he must take himself for better, for worse, as his portion; that though the wide universe is full of good, no kernel of nourishing corn can come to him but through his toil bestowed on that plot of ground which is given to him to till. The power which resides in him is new in nature, and none but he knows what that is which he can do, nor does he know until he has tried." --Ralph Waldo Emerson, 1841

If we met over tea, how would he respond when I quoted his 173-year-old words back to him? What would he say to a woman on a remote Allegheny mountaintop farm in 2014? A woman struggling with many of the practical survival issues well-known to the 19th century, coupled with something nearly as insidious and unstoppable as a plague of small pox: The expectation of electrons-on-demand, of pumps that move water at the flip of a distant switch, of worldwide communication at the click of a piece of plastic called a mouse.

I imagine his bemusement at the peculiarities of my plight. But even more, I feel his nodding recognition of my struggle with Expectation and its corrosive impact on my sense of Self. He wouldn't take any of his old words back, not for a moment. But what would he say?

"The woman who stakes claim to a mountaintop and endeavors to carve her life upon that rocky earth would do better to build an Ark and wait for the Flood than expect the solace of regular society to carry her away from the Self she seeks. The valley and the ridge are joined by the land between them, each rod of which, once advanced, cannot be foresworn save by the liar or the fool!" Can you hear it?

Warming to the subject, he might lean forward over our teacups, lowering his voice for effect: "Once your Self has claimed its authentic home, celebrate, grieve not. Resist the siren call of conventionality and the safer drudgery it promises. Your trust in conformity is what restrains you. It is the barometer of your self-defined failure. Leave it behind, as the hair your mother cut from your brow so you might see!"

With all due apologies for putting words in his mouth, I can't help but imagine him "getting" me. Old infatuations die hard.

And the fact is, I might not be here on this mountain ridge if I'd never read the words he penned over a century and a half ago. Words that have never ceased to remind me I'm not alone, even as they prod me never, never-ever to settle for the well-traveled road.

Looking back, it's pretty clear I was destined to find him. Growing up in post-MLK-assassination Memphis, the daughter of parents who established a hazardous waste recycling business in the heart of the African-American ghetto, I learned early not to define what I was capable of. Which is to say, I learned not to put an arbitrary limit on it. Limits didn't matter. Coping with the situation was what mattered. Enduring was what mattered.

This is not to say that everything I've endeavored since has been a roaring success. It is to say that once you've learned early that there's no point in limiting what you can endure, then there's little sense in limiting what you can attempt.

Trite as it might sound 173 years after RWE wrote it: How does one know what it is she can do until she has tried? This 47-year-old woman, like that girl who first read RWE 30+

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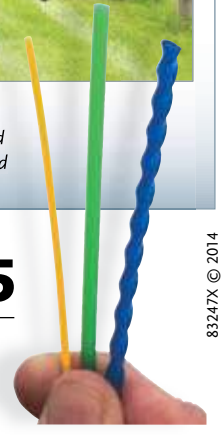

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years ago, sees little point in living life sheltered from the discovery of what she can do.

I also know something else, taught me with incomparable efficiency by my Memphis childhood. There is no certificate of competency, no graduate degree, no class grade that would somehow qualify me for living here, on this Allegheny Mountain. No imprimatur from an ultimate authority that would give me special dispensation in dealing with the weather or the wilderness or the wild animals or the manifest difficulties of off-grid life. To be sure, various societal authorities have endowed me with their seal of approval, but unless backed by my personal integrity, my steadfast belief in my ability to see it through, of what worth is such a seal?

It is worth nothing. When snow falls and the generator stops working and there is no communication with the outside world short of a 15 mile drive, no diploma is gonna bail me out. No government agency or local utility either. I'm on my own. Left to my own wits and my own, perhaps, previously untapped capacities. Capacities I must be willing to tap. Fearlessly so.

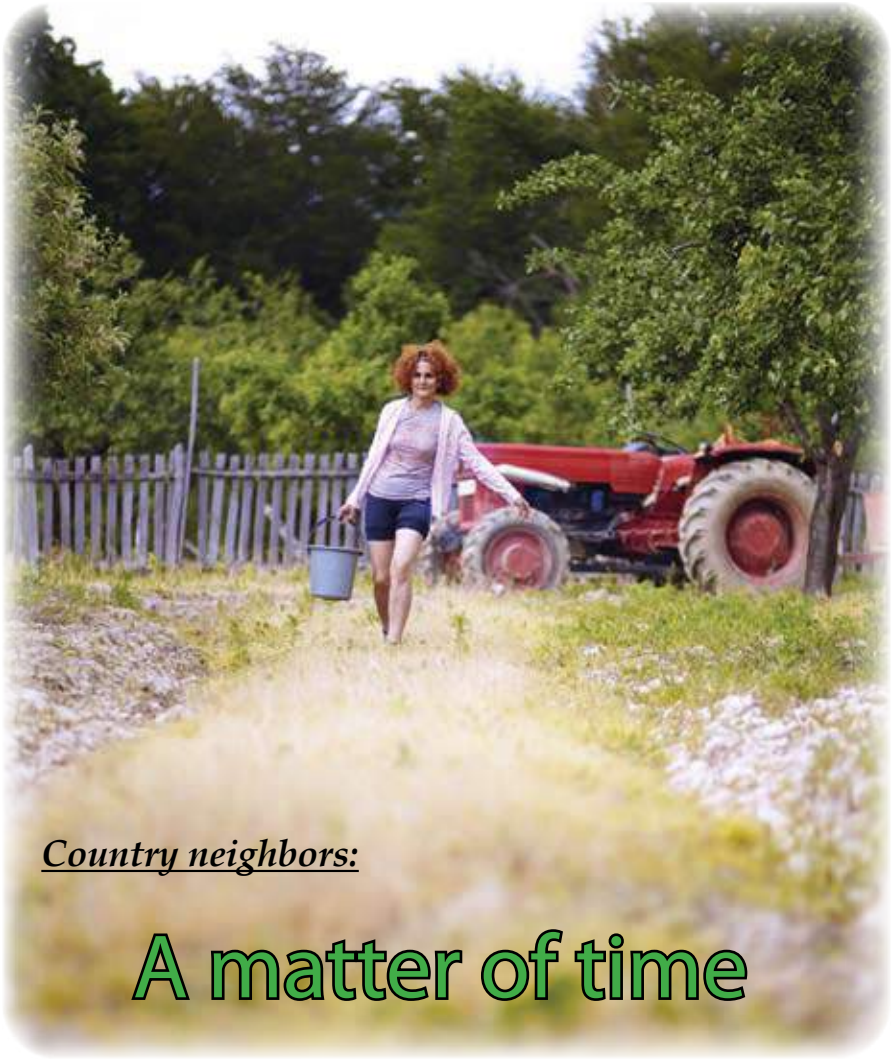
This was RWE's most important point.

What society authorizes you to do is one thing. Societal authorization creates a feedback mechanism that I would call "co-dependence." (RWE might call it conformance.) In society, you can only do what you do if you're authorized a priori from an external authority. Such authority must continue to support you in what you do in order for you to continue to believe you are worthy and capable of doing it.

What you can do by pushing yourself to find out if you, indeed, can do it (regardless what the outside authorities say) creates a different sort of feedback loop.

I really don't think RWE would mind if I call it Self Reliance.

Dawn Baldwin owns and operates Brightside Acres, a small organic farm on a mountain in Pocahontas County, West Virginia.



Country neighbors:

A matter of time

By Terry Ridgway
Texas

Introduction:

My arrival in the country was the goal I had worked for all my life. Some may wonder why a goal is so difficult to reach when it appears everyone is trying to climb higher and higher to achieve their goal, never asking themselves when they will recognize they have reached the top. I believe the "top" is a mental image produced by the imagination of each individual. Some will never reach this plateau because they refuse to stop the climb. I was one of the lucky ones; I stopped climbing and knew I had arrived.

When I first moved to this property 41 years ago, I was still "city" and it took years of hard labor, heartaches and backache for me to arrive to the point that I knew I no longer was considered "city," I had paid my dues.

Spring was coming and I was already planning what I was going to plant in the garden. I would visualize the rows of beans, onions, lettuce, radishes, beets, broccoli, cabbages, carrots and potatoes would go in. The thought of taking these to the county fair and they being judged the finest in every category, made me realize I had a long way to go before I could take anything into the house, much less to a fair.

First I had to get rid of all the Johnson grass. It was about four feet high and covered the entire garden. Under the grass I could see lots of rocks and knew they too, would have to be removed. People had told me not to cut the

grass because it would come up again from the roots. You were to pull up each piece by hand and get the root out of the ground. I found a piece of old carpet and went out one Saturday morning. Right where I entered the garden through the gate was where I laid the carpet to sit on. This was where I had to start, since the rest looked like a jungle. I started pulling the grass and after about an hour I got to my feet and looked ahead to what was in front of me. This was my first mistake, because the amount of weeds appeared to be the same as it was an hour ago. I learned a very valuable lesson. When pulling weeds, I could never look forward; always look behind, then I could see what I had already accomplished. That satisfaction gave me the energy to continue to move forward.

I carried this lesson over to my job in the city, for no matter how much work accumulated, I never got upset. Once you get started, just always look behind at what you have accomplished, knowing that it was just a matter of time and you would be finished. I tried to convey this to other employees, but I decided if they had never pulled the amount of Johnson grass I had, there was no way for them to understand what I was talking about.

After I had pulled all the Johnson grass (which took me about four weeks), I was ready to tackle the rocks. There were so many rocks you could barely see the dirt. I started picking up the rocks in a bucket, and when the bucket was full I would walk out in the pasture and empty it. After several trips, I realized this was not the way to do it. I would be piling rocks for years. I decided I would fill the bucket and then dump the rocks in a pile. Each pile would have five buckets in it, and then I would move on and start another pile. The only problem was that after I had picked all the rocks, I had 81 piles to move. I decided this would require a wheelbarrow, and after filling it about half full (2/3 of a pile), I pushed it out into the pasture. After the first trip I knew I couldn't move all of the piles, I needed help—machine help.

Later in the week I started looking at the largest garden tractor on the market. I asked all kinds of questions; this was going to be an important piece of equipment for me and I wanted to make sure I bought what I needed. I talked to some of my men friends about tractors. The one I decided on was large, but it handled easily and I was assured a woman could operate it. I also bought a trailer, which could be attached to the back with a disc, plow and cultivator.

The morning the tractor was delivered, I had been waiting, it seemed, for hours. The deliveryman showed me how to start it, where the brake and clutch were, and how to attach all the extra pieces of equipment I had purchased. When he left I attached the trailer and headed for the garden. I was going to move the rocks out of there so I could start planting before spring was over. As I approached the gate opening to the garden I realized I needed to back in so I would not run over all my piles. I turned the tractor around so the trailer was lined up with the gate opening and started backing. Several times I nearly knocked down the post holding the gate, since the trailer wouldn't back straight. After trying to back up for over an hour I was exhausted and knew I would never get that trailer into the garden.

I drove out into the large pasture and climbed down off the tractor. I picked up some rocks I had brought out from the garden and laid out what I thought were the dimensions of the garden gate and the size of the path I was going to back into. All afternoon I kept practicing, and I discovered if I turned the steering wheel in the opposite direction of where I wanted the trailer to go, I could back up through my gate opening. Why this took me so long to figure out, I don't know. I headed back to the garden and the gate. I lined the tractor and trailer up with the opening, put the tractor in reverse and started my backward entrance into the garden. I went straight through the opening, missing the piles of rock that were on each side and stopped exactly in front of the first pile of rocks. I had done it. I knew how to back a tractor and trailer. Why it was so hard, I never understood. It had taken me all day to accomplish this and the only way I would justify the time spent was to remind myself I had to learn all by myself. If I could figure that out, I decided I could figure anything out. Little did I know at that moment all the figuring I had in my future.

Once I got the trailer into the garden I found it necessary to use my bucket again. This time I filled from my rock piles and dumped them into the trailer. I was repeating what had already taken me weeks to do. After the trailer was full (the tires would be nearly flat on the ground), I would drive out into the pasture and remove all the rocks with a shovel. On one of my many trips I tried to figure how many rocks I was actually moving from one place to another. I stopped and got a pencil and paper and started adding. The garden was 75' x 75' and I had piles about every eight feet, so I had roughly nine piles in the front and nine down the side, added together gave 81 piles of rock. There were five buckets in each pile, estimating a bucket held about 50 rocks. So, 50 x 81 piles came to just over 4,000 rocks. Since I picked them up once to put them into piles, and now I was picking them up again to move them to the pasture gave me a total of 8,000 rocks with my handprints on them.

When I went to work after a weekend off I was always so thankful no one asked me what I had done the previous two days. I think if I ever mentioned I moved 8,000 rocks they probably would have thought I moved one too many.

What I did at home I never shared with those at work. If they didn't live in the country there was no way I could explain my weekend activities. They were "city" and I was "country."

Sometimes, looking backwards is the only way to move forward. I had given so much of myself, but I had received a beautiful life in return, and one I will always treasure.

Country neighbors:

Growing up rural in the 1950s

By Mike Dishnow
Wisconsin

The little village of Michigamme, in the Upper Peninsula of Michigan, was a wonderful place for a boy to grow up in the 1950s. Many a venture we embarked on, all of them outside in nature. There were no computers or electronic games to play.

In the farming country, where Finnish immigrants had attempted to farm in the early 1900s, lying just beyond the west end of Lake Michigamme, ran the Spruce River. A friend of mine had an uncle who lived on an old farm that was near this stream. Across the 40 behind the barn, a trail led to this wonder with native Brook Trout lurking in its shadows and under the banks. The Spruce River was a favorite destination in those preadolescent days when we had not yet discovered girls. A good day wading over the rocks and through the mud flats of the Spruce trumped all. These were the finest days of our youth.

These were the years of roaming "the hills" across U.S. 41 from the town. We tramped into the wild and stopped at the first pole line (electric) until we matured in our woods navigation to the point that we ventured on to the second pole line and beyond. Both pole lines paralleled U.S. Highway 41 north of Michigamme. I lived on Railroad Street, which was a good stone's throw south of the highway.

A smile comes to my face when I think of one misguided excursion that brought us face to face with the law. It was our common practice, at a rather tender age of 10 or 11, to take our rim fire .22 rifles into the woods in search of rabbits and ruffed grouse. The legal age being 14, our youthful looks and demeanor caught the attention of a passing state patrol car one day. It went something like this:

A state patrol car, rounding a bend in the highway, came to a quick halt on seeing us young boys with rifles in hand crossing the highway. Like wild snowshoe rabbits, scurrying into the brush to escape a predator, we ran as fast as our young legs would carry us up into the woods. We did not stop until we had crossed the first pole line, deep in the woods in our young minds. Like bunnies, we hid in the thickest thicket we could find and waited. When all was quiet and it was obvious that our pursuers had not taken to the chase, or had given it up, we went on our merry way in quest of small game. We laughed and congratulated ourselves on our fleetness and woods skills; there is a glory in being young and male.

Another friend of ours, crossing the highway, in the same timeframe, was not so lucky. He was not as skittish and did not run when the same patrol car spotted him. He earned a ride in the squad car to his house, and a stern talk ensued with his mother present. His mother promised to bring up the issue with her husband when he returned from work that evening and placed the rifle in the closet. Our friend said he wasted a whole hour that afternoon waiting for his mother to allow him to venture out with the rifle again. On returning home that evening his father admonished him to "wise up" and look both ways before stepping on the shoulder of the highway.

In those days, we read books about Roy Rogers, Gene Autry and Red Ryder, roamed the woods of Kentucky with Daniel Boone, and served at the Alamo with Davy Crocket. Television had not arrived in Michigamme and video games had not replaced Monopoly and cards. It was a wonderful time to be a boy.

Trapping small critters remained a hobby for a number of years. I was kind hearted, loved animals, and saw them as pets, not captured wild animals. A chipmunk I placed in a wire cage in the basement would surely become my friend. I remember going over to the local grocery store, owned by the parents of one of my friends, and asking for cast away orange crates; wooden orange crates had just the right type of lumber required to make an old-fashioned box trap. Add a few small nails, some screen, and youthful ingenuity and a very nice trap would be born. A scrap of hard bread is all that was needed for bait and chipmunks and squirrels abounded in the rocks and strip of trees and brush bordering the highway. When school was in session I would come home and go down to check my traps, not uncommonly finding a squirrel or chipmunk. My mother would lobby for their release after a few days as I became disillusioned that they were not happy in my care. We would make the five-mile drive to our lake cottage and release them there.

Lake Michigamme, a beautiful stretch of water nearly eight miles long and seven miles at its widest point, was only a couple of blocks from my house. We learned to swim at an early age and spent innumerable hours down at the lake. The men in town placed a swimming dock off shore for the town kids and we frolicked and dove from this floating platform at all hours of the day and into the evening.

Not far from the swimming dock was an old airplane dock attached to the shore. This dock was permanently placed and was there waiting for us in the spring, unlike the swimming dock that was taken up in the fall. A real feat of manhood was to be the first to brave the cold waters in late May or early June. I remember psyching myself up, running to the dock's edge, never stopping and cascading into the very cold water. I would begin clawing for the surface the moment my body streaked underwater and setting some

kind of speed record reaching and breaching that dock. It was jolting.

We cavorted and schemed and played summer, fall, winter, and spring in the hills and forests surrounding our little town. Summer usually brought the construction season and most years a new and improved hut would appear up in the hills. Most were of simple lean-to construction made with saplings and the nails we pilfered from our garages and basements at home. We often lined the insides with cardboard from old boxes outside the local grocery store only to be disappointed after the first good rain storm. Our disappointment was usually fleeting as by then we were on to a new location, further back in the woods or a new endeavor entirely.

Somewhere along the line someone, likely my grandfather, Old Mike, taught me about snaring rabbits. Not only was this illegal, many of our local men kept beagle dogs to hunt the swamps for bunnies. They abhorred snares because they feared the small beagle dogs would fall victim. This did not deter me. It only made me more conscious of where I set the snares; I kept away from the swamps where I knew the men hunted. Again, there was the strip of brush near U.S. Highway 41. I did not enjoy the success with snaring that I had come to expect as a result of my prowess with box traps. None-the-less, the day did come when I caught my first snowshoe hare. Proud as punch I walked up the street, rabbit, still in the snare, hanging from my hand, a bunch of friends in tow. My mom nearly had a heart attack. "Why don't we simply announce your success in the *Daily Mining Journal*?" she quipped.

I wonder if the kids now days ever venture down to the strip of trees near the highway, let alone into the wilds north of the highway. I suppose the critters are happier in their native environment than in the basements of Michigamme in small homemade cages. But, I suspect that I have remembered those days and happy times much longer than today's kids will remember the latest video game.

Country neighbors:

Super fly Saturday

By Cassandra A. Johnson

The hardest thing I have to do each day is to leave the farm to go to work. You see, the farm wraps me in great comfort beyond explanation. I bask in its beauty and splendor, its quiet comfort and rhythm.

Now, this Saturday morning, one of the few that I have off, I can watch the farm while I get a few household chores done. The cattle are out grazing on a hay bale in the gentle falling snow. I watch them from the kitchen window while I hand wash the morning dishes. Their backs covered with white. One stubborn dairy goat doe is in the thick of the group. She will not miss out on her share of the hay, although she was given some in the pole barn with the other goats. The remaining does stay in the barn out of the wet cold stuff. The outside group also contains two donkeys: Jack and Jenny, of course. And Jack gives warning bucks and stomps with his back legs when the others get too close to his portion of hay.

I must leave nearly every day to a job that I am so lucky to have and that suits me well. I am currently working at the local county animal shelter. When I am there, I am delighted to be taking care of the lost and abandoned dogs and cats. It is hard to leave the shelter when the day is done, hard to say good night to those adoring faces. But I do drive home quickly. It is always so good to be back on the farm.

We both work to support the feed bill, the equipment repair bills and all the other incidentals that are ongoing to the farm. We grow 200 tomato plants and 70 green pepper plants in the spring in two plastic high tunnels. Our 75 x 65 garden is for our own consumption and of course, stock piling by canning all summer long. I was blessed one summer to stay at home on the farm and farm. It was a happy summer that clearly identified to me the need to hold an off-the-farm job for now. The day will come when we are both here every day to manage the farm tasks.

Today I am not at work but snuggled in old stained jeans, my feet wrapped in hubby's thick socks for added warmth. We both don frayed and stained shirts covered with sweatshirts colored with swatches of spilled bleach or paint. If I venture outside today I will climb into my muck boots. Not only are these boots perfect for farm chores, but they are ideal for snowdrifts. Our clothes remind us of days past, scrubbing, scraping, and cleaning animal housing or tending to livestock births or wounds. We look like raga-muffins, and so do our farming neighbors and friends. Perhaps this dress is a common uniform among those who farm.

Of course I rescued a dog from the shelter. We already had two dogs. The first, a sweet and gentle beagle called Penny, the dog I always wanted as a child. The second dog, a hyper and loyal blue heeler named Bandit, which I desired after buying the farm. And the third, a comedian and a Heinz 57 named Joc. My boss caught the renegade who was on the run as a stray. It took two weeks and a female dog that lived in town near a French restaurant for my boss to finally catch up with him. Still doing dishes, I watch as Joc, a yellow retriever mix, bounces through the snowdrifts like a deer and heads over to the grazing group of livestock. Through the cattle panels he barks relentlessly trying

to tease them all, to no avail. Joc has barked and teased them too often for them to take any notice at all. Joc does his best to keep things interesting on the farm every day.

After paying the farm bills and doing a couple loads of laundry, it's no surprise to my husband, as he comes in out of the cold, that we will lunch on egg salad sandwiches and coffee. The chickens have been laying overtime and won't stop. After a couple of years of not having enough eggs to sell our customers, I finally came up with a good group of hens that lay religiously every day. We keep a heat lamp on during the cold winter months but have turned off their light in an attempt to reduce this mass production of eggs during these shorter days. They haven't let up yet and so I give dozens away at work and cook with eggs constantly.

Because the farmhouse we bought came with its own supply of houseflies, I must now vacuum the floors and windowsills. The floors get swept or vacuumed because the dogs are constantly shedding, but the windowsills get vacuumed for the flies. I have tried to no avail to get the flies to relocate. The house is more than 100 years old with windows that were installed perhaps 25 years ago. Oh, they are big name, double paned windows, but I suspect the installation could have been better. The sunny window frames harbor nests and after trying every remedy known to man, I have given up my battle with the flies. Instead of fighting with them, I have removed the window screens and open the window to let them out! Our old farmhouse sits smack dab in the middle of our little 10-acre farm. The only thing on it that doesn't have poop on it is the driveway. In the spring my husband will haul poop across the driveway to the garden and the hayfield, so it too will have poop on it soon. My husband has reminded me that with two barnyards, the chicken coop, the turkeys, a pigpen and the pastures that surround the farmhouse; this fly issue is to be expected.

After I empty the vacuum canister on to the compost pile, my husband

totes in several loads of wood and distributes a nice amount of debris throughout the house. Now I know, I could have waited to vacuum, but this seems to be our special ritual. And so I put on a smile and my coat to help gather in a few armloads of wood for the woodstoves in the bedroom and living room. After all, we do live on a farm and some hay, dog hair, wood chips and dirt on the floor is expected. At least I can vouch that it is clean under all that. I am excitedly waiting to sew the whole time we tote in the wood.

I have nothing to show for it, but I love to piece quilts. For some reason, I keep giving the quilts away once they are completed. While I am putting a quilt together, I think of someone out of the clear blue and while I am sewing I realize this quilt belongs to them. Today I am on the last border of a quilt that will be sent to my sister in Montana who will do the quilting with her long arm machine, and then it will go to my 93-year-old father, who is in a nursing home in Florida. I can't wait to send it to him!

I don't recall when the tradition started or how, but sewing has become a family affair. My sewing machine sits on a portable table in the corner of the dining room for the same reason we installed three rows of shelving onto the window frames. The shelves are full of super early tomato seedlings. The light in this room is perfect. Perfect for watching the morning sun wake up the barnyard and perfect for sewing and growing vegetable seedlings. The dining table is an oval one in the middle which seats four to six people, and in the corner opposite my sewing workstation is a small desk with the computer. Farm bookkeeping is done there or, while I sew, my husband comes in out of the cold to warm up and play some rounds of Solitaire—often with a beagle on his lap. While I sew, the two other canines lounge lovingly at our feet. Once I piece and sew some of my quilt together, I must gingerly step amongst our dog buddies to get to the ironing board. Again, I don't know how this all started, but apparently everyone around here likes the sound of the sewing machine humming along.

Beyond the view of the pasture, out this window, I can see the snow swirling down and piling up in the hayfield. Our neighbor owns the field but lets us make some of our much-needed hay on it. Quiet and beautiful, pristine and magical, sometimes a small herd of deer or flock of turkeys will mosey on through on their way to the state forest that meets at the hay field's edge.

At 4:00, a few lights start getting turned on; we are still seeing more snow than sun. Not much sewing has gotten done yet, but my husband leaves the computer to suit up with a couple more layers of clothing to go feed and water the menagerie. I now must start the process of cooking our supper and start a fire in the woodstove in our bedroom. It was a good Saturday off. I know underneath the hay and chips of wood, the floor is clean and we have plenty of wood to help keep us warm. Although the clothes on our backs are stained, the laundry is done and is cleaner than it looks. It feels so good to be home and on the farm. And right now, as I stand at the sink under the kitchen window and scrub last year's dirt off a garden dug potato, when I look up to look out, I see only one fly in my kitchen window.

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By W. L. Felker

The summer winds is sniffin' round the
bloomin' locus' trees;
And the clover in the pasture is a big day
fer the bees,
And they been a-swiggin' honey, above
board and on the sly,
Tel they stutter in theyr buzzin' and
stagger as they fly.
— James Whitcomb Riley

The Ephemeris for May

The Phases of the Tulip Moon and the Cherry Pie Moon

April 29: The Tulip Moon becomes new at 1:14 a.m.

May 6: The moon enters its second quarter at 10:15 p.m. Apogee

May 14: The moon is full at 2:16 p.m.

May 18: Perigee: The moon's position closest to earth

May 21: The moon enters its final phase at 7:59 a.m.

May 28: The Cherry Pie Moon is new at 1:40 p.m.

The Sun's Progress

On May 21, the sun enters Gemini and lies within just a small fraction of its summer solstice position.

The Planets

Venus will move retrograde into Pisces throughout the month, keeping its position as the morning star throughout May. Mars remains in Virgo, visible in the south well after dark. Jupiter stays in Gemini as the evening star throughout May, following Orion into the sunset. Saturn travels with Libra into the far west at dawn until May 10. After the 10th, it is visible in the evening, rising in the east and moving along the southern horizon.

The Stars

The corn and soybean planting star, Arcturus, is reaching toward the center of the sky before midnight, watching over the final seeding of those field crops for the year. When Arcturus lies in the west after dark, corn will be just about ready to be cut for silage. When Arcturus appears on the eastern horizon before dawn, it will be time to bring in all the rest of the corn and the soybeans.

The Shooting Stars

The Eta Aquarids are active on May 5 and 6. Find them after midnight in Aquarius above the southeastern horizon. The dark moon should favor meteor viewing, and the early morning of May 5 should produce the most meteors.

Holidays and Special Occasions for Gardeners, Ranchers & Homesteaders

Early May through the Middle of June:

Market to consumers who are celebrating the graduation of a child from high school or college.

May 5: Cinco de Mayo: Lambs and kids may be in demand for the Hispanic market around this date.

May 26: Memorial Day: Have your lamb and chevon at local markets for Memorial Day cookouts and picnics.

Meteorology

Cool fronts are due to cross the Mississippi on or about May 2, 7, 12, 15, 21, 24, and 29. Full moon on May 14 and new moon on May 28 could contribute to unstable meteorological conditions. Tornadoes, floods or prolonged periods of soggy pasture are likely to occur within the following windows: May 3–14 and May 17–24.

The Ephemeris for June

The Phases of the Cherry Pie Moon and the Cicada Moon

June 2: Apogee: The moon's weakest position, farthest from Earth

June 5: The Cherry Pie Moon enters its second quarter at 3:39 p.m.

June 12: The moon is full at 11:11 p.m.

June 14: Perigee: The moon's most powerful position, closest to Earth

June 19: The moon enters its final quarter at 1:39 p.m.

June 27: The Cicada Moon is new at 3:09 a.m.

June 30: Apogee

The Sun's Progress

Summer solstice for 2014 occurs on June 21, at 6:51 a.m. EDT. The sun enters the middle summer sign of Cancer at the same time.

The Planets

Venus keeps its position as the morning star throughout June. Mars and Jupiter are evening stars throughout June. Saturn is visible in the evening along the center of the southern horizon.

The Stars

The handle of the Big Dipper has started to rotate toward the west, marking the time that chiggers and Japanese beetles appear along the 40th Parallel. In the east, the Summer Triangle is rising, bringing all the lilies into bloom and ripening the raspberries.

Holidays and Special Occasions for Gardeners, Ranchers & Homesteaders

June 29: Ramadan begins: Advertise your farm to the Halal market in preparation for the close of Ramadan on July 28.

Meteorology

Cool fronts are due to cross the Mississippi on or about June 2, 6, 10,

15, 23 and 29. Major storms are most likely to occur on the days between June 5–8, June 13–16, and June 24–28. Full moon on June 12 increases the chances for freezing temperatures along the Canadian border. New moon on June 27 could contribute to unstable meteorological conditions in conjunction with the June 29 cool front.

The Almanack Daybook

May

1. While the moon is still dark, fight armyworms and corn borers.

2: The waxing moon favors the planting of all flowers and vegetables that will bear their fruit above the ground. The waxing moon is also fine for the harvest of strawberries and spring vegetables.

3: Plan to have all your corn and soybeans planted by the time the first thistles bloom.

4: As conditions permit, sow seeds for forages that will provide as close to year-round grazing as possible.

5: Spring pasture now reaches its brightest green of the year, and haying is underway in the southern states.

6: Since the moon may exert less influence on ocean tides and on human and animal behavior when it comes into its 2nd and 4th quarters, it might make more sense to perform routine maintenance on your livestock and pets today or about May 21.

7: Major planting of peppers, cantaloupes and cucumbers is taking place when you see spitbugs hang to the parsnips.

8: Spring rains and humidity increase the risk of internal parasites in livestock.

9: When mock orange, peonies and wild raspberries bloom, move your livestock to pasture.

10: In the Northeast and Upper Midwest, it's time for tulips, azaleas and rhododendrons.

11: The cold front that arrives around this date is one of the last frost-bearing fronts to move across the nation.

12: All the clovers come into

bloom, along with the small black medic, purple vetch, and the weedy yellow and white sweet clover in all but the northernmost states.

13: Spring wheat is just about all planted in the North, and all the oats should be in the ground between Denver and New York.

14: Tidal lunar influences have been shown to be greater at full and new moon times. You might expect more trouble with your herd, spouse or children, today and about May 28.

15: The May 15 cool front and the next two high-pressure systems are often followed by the Strawberry Rains, the wettest time of May in the lower Midwest and the Mid Atlantic states.

16: In the western states, new burrows of prairie dogs may cause problems in your fields and pastures.

17: Now blueberries are flowering along the Canadian border, and strawberries and wild black raspberries bloom in the Ohio Valley.

18: The moon's position today (powerful perigee closest to Earth) increases the likelihood of turbulent weather.

19: Army worms and corn borers appear in fields throughout the country this month. And in southern gardens, squash bugs and Japanese beetles are out in force.

20: The days surrounding the cold front that arrives near this date are some of the most turbulent of May, often marked by rain, tornadoes and high winds. The May 21 system also brings the threat of frost along the Canadian border.

21: Lunar lore suggests that the waning moon is best for planting all the rest of your crops that will produce fruit below the ground.

22: Also use the waning moon for hunting potato leafhoppers, cucumber beetles, mites, bean-leaf beetles, fleas, lice, ticks, screwworms and fly maggots. The last two phases of the moon are also efficacious for worming and spraying for external parasites, for weeding and for mulching.

23: Blackberries are in full bloom in the Northwest, and dogwood trees are open around Sequoia National

Park in California at the same time that the canola and winter wheat crops are about ready to be harvested in the Midwest.

24: Alfalfa weevil infestations become more common when elderberries start to bloom.

25: By today, winter wheat could be at least a foot high across the central states, and is turning pale golden green below the Mason-Dixon Line.

26: Think ahead to breeding time, and finalize all spring culling.

27: Sometimes half of all the nation's tobacco plants are in the ground by this date.

28: In the West, shear your sheep when the winter rains end. Treat your whole flock for ticks when you're done. In the Gulf of Mexico, the end of May is usually ideal for shrimp fishing.

29: The earliest corn is six to twelve inches tall along the 40th Parallel, soybeans three to four. Blueberries are setting fruit in the Northeast.

30: As warmer weather changes the growth patterns of bacteria around the farm, keep udders neatly clipped, and be sure to disinfect them before milking.

31: Spring wheat is just about all planted in the North, and the oats are in the ground between Denver and New York.

June

1: This week is a good time to finish clipping your goats for summer. The cut will help keep them cool, and you'll be contributing to a better situation for weight gain and stable health.

2: The June 2 front can still bring a light freeze at higher elevations, but apogee today (the moon's position farthest from Earth) is likely to soften that high pressure system due to cross the Mississippi this week.

3: Placing blackberries and raspberries along your hedgerows offers a simple way to offer healthful browsing material for your livestock.

4: The waxing moon favors the continuing harvest of strawberries and spring vegetables.

5: Stabilize the feed schedule of the animals that you'll show this summer, increasing the grain in their rations.

6: The June 6 front is associated with a four-day period during which there is an increased chance for tornadoes and flash floods.

7: Protect yourself against chiggers: they're biting now.

8: Gather cherries, mulberries, and black raspberries in the mild June days. Fertilize asparagus and rhubarb as their seasons end.

9: Protection from the weather, plenty of water and adequate supplements may help to reduce heat-related weight loss in livestock.

10: The sunniest June days usually occur between now and the 26th, and the first major heat wave often develops across the central states.

11: If your animals have been out in the sun for a long period of time, and they are starting to pant and are unsteady on their feet, they could have sunstroke.

12: Pollen from grasses reaches its peak in the central portions of the United States.

13: Check the nutrient content of your livestock's forage. Provide supplements when necessary to promote peak fitness.

14: Plan to shear the scrotum of your rams and bucks for hot weather, and keep them in a cool place with lots of shade.

15: Dry conditions typically prevail in mid June, and the period

between the 13th and the 26th is historically one of the best times of the month for fieldwork.

16: Increase the water supply to your flock as pastures dry out and feed contains less liquid.

17: Watch for mold in the hay stall in the feed storage area when humidity levels rise dramatically toward the end of the month (after the June 28th cool front).

18: Flea beetles, damselflies and leafhoppers become active and crickets sing as locust trees flower and snapping turtles lay their eggs.

19: Consider expanding your pasture acreage. Parasites are often fewer in livestock when animals have more land on which to graze and browse.

20: Prune shrubs and trees that flowered earlier in the year.

21: The waning moon and the dry days of late June are especially favorable for beginning the winter wheat harvest, for completing the first cut of alfalfa and beginning the second cut.

22: The darkening moon is also right for all kinds of animal care (especially worming and spraying for external parasites), for weeding and mulching as well as insect hunting.

23: The June 23 high-pressure system is typically cool and dry, and it is often followed by some of the sunniest days of all the year. As the next June front approaches, however, stability can be expected to give way to storms.

24: Be sure grain is kept in clean containers and secure from summer rodents.

25: Cattails are almost fully developed. May apples should be ready to harvest in the woods. Blackberries have always set fruit, even in the coldest years. Black walnuts are at least half their full size.

26: Between now and the end of the first week of August, average temperatures vary just one degree in most of the nation.

27: The Cicada Moon is new today. Many people plant turnips and beets for fall harvest as well as for fall grazing under this moon.

28: Summer blueberries are being picked along the Great Lakes, and cornfields start tasseling in the nation's midsection.

29: Middle summer typically begins near this date and lasts through August 10. Within that period, approximately one hour is lost from the day's length along the 40th Parallel, and the year turns toward autumn.

30: The final weather system of the month is often followed by the Corn Tassel Rains, a two-week period of intermittent precipitation that accompanies the Dog Days of middle summer.

Lunar feeding patterns for people and beasts

The following weekly key to lunar position shows when the moon is above the continental United States, and therefore the period during which all creatures are typically most active. The second-most-active times occur when the moon is below the earth.

Date: Moon Above; Moon Below

May 1–6: Afternoons; Midnight to Dawn

7–14: Evenings; Mornings

15–21: Midnight to Dawn; Afternoons

22–28: Mornings; Evenings

May 29–June 5: Afternoons; Midnight to Dawn

6–12: Evenings; Mornings

13–19: Midnight to Dawn; Afternoons

20–27: Mornings; Evenings

28–30:Afternoons; Midnight to Dawn

Winners of the March-April Sckrambler

As of my deadline to Countryside, 71 correct responses had been received to the March-April Sckrambler. A prize of five dollars was promised to the 2nd, the 12th, the 49th, the 83rd, the 99th and the 155th to return the correct Sckrambler solutions by my deadline. The 2nd was Debbie Mack of Burlington Flats, New York; the 12th was Jade Meador of Hardinsburg, Kentucky; the 49th was Barbara Beargeon of Denver, Colorado. The other prizes went begging.

Answers to the March-April Sckrambler

ONOM: MOON
TASR: STAR
LOSECITS: SOLSTICE
RALIB: LIBRA
RGVIO: VIRGO
AECNCR: CANCER
ARYDH: HYDRA
NMGIIE: GEMINI
KYS: SKY
OOINR: ORION
IGB PPDIRED: BIG DIPPER
CORSIOP: SCORPIO
PLANTE: PLANET
SARM: MARS
UENVS: VENUS
UAIUQRSA: AQUARIUS
GASEPUS: PEGASUS
SECSIP: PISCES
TTIGASSIURA: SAGITTARIUS
NUS: SUN

The May-June Sckrambler

If you are the 3rd, the 9th, the 43rd, the 68th, the 99th or the 142nd person to return your correct Sckrambler solutions by my deadline to Poor Will, P.O. Box 431, Yellow Springs, OH 45387, you will win $5. There should be no typos in this puzzle, and no typo prize will be awarded. If you happen to find a typo, however, you may simply skip that word without penalty. Send your entries by regular mail (postcards preferred) to Poor Will at P.O. Box 431, Yellow Springs, OH 45387. The names of any winners whose correct responses are received after my deadline to Countryside will appear in a later issue.

ROCW
BORNI
WHETIBBO
EOHPBE
LERTSEK
LANCARDI
IEFLCKR
BBLRDUEI
FISHKINGER
OWCIBDR
TARLINGS
RGKCLEA
ARROWPS
VEOD
ALKR
KWHATHGIN
LOLWASS
IEEKLLD
EAAHPSTN
EKIRSH

Capture Your Countryside... and share it with us!

Countryside is proud to present an on-going photo contest. Send us photos from your homestead—livestock, grandchildren, garden, barn, etc.—and we may share it with Countryside readers! Each issue's "Featured Photo" will receive a FREE Countryside t-shirt!

E-mail your photo(s) as jpeg attachment(s) to friend@countrysidemag.com with "Capture Your Countryside" in the subject line, be sure to include your name, mailing address, phone number and a brief description. Or mail photo(s), including your name, mailing address, phone number and a brief description, to "Capture Your Countryside," 145 Industrial Drive, Medford, WI 54451.

Any photos received will become the property of Countryside Publications and can be used at anytime. Countryside Publications retains the right to publish and/or reproduce any and all photos submitted in future issues or publicity, with or without mention of source.

Featured Photo

My two-year-old daughter, Anna, with her daddy and Bella, the newborn lamb. Bella was born on Anna's second birthday, so it was a special day for all of us. — ***Aimee Gagnon, Maine***

My 25-year-old rose bush in front of my farm house. — ***Irene Ladd, Maine***

These adorable babies are the first chick and duckling hatched here in spring! — *Grace McCain, Oklahoma*

I was visiting some friends who live rather wisely and thoughtfully on their homestead on Galiano Island, British Columbia. One early morning, as the fog was lifting, I sat quietly with my friends' dog, watching the sun rise over the nearby cove. I was struck by the beauty and solitude of it all. I suspect it was just another ordinary day for the dog. — *Tyler P. Amy, Pennsylvania*

This is my Alpine doe, Princess, looking very amused after licking my husband's face. She was being particularly affectionate that day and I snapped the photo at the perfect moment! — *Angela and Russell Perkinson, Virginia*

Here is a photo of my beautiful daughter on our wagon. This was taken on our homestead that we're remodeling and getting ready so one day, hopefully, we can move to it and start a more simpler life. — *Dion Byrd, Mississippi*

I wanted to share a photo of my beautiful geese Rhett, Scarlet and Ashley with you. My geese roam on my grandma's farm and lay big beautiful eggs each spring. They love to scare people—but actually they are quite a friendly greeter and let me know when somebody comes down the lane. They are much better than a watch dog! — *Darlene Skidmore, Maryland*

Countryside's Breeders Directory

Alpacas/Llamas

Georgia

PEARSON POND RANCH & LLAMA CO., 242 Llama Lane, Ellijay, GA 30540. <www.pearsonpond.com> Over 150 llamas to chose from–Traditional–Suries.

Missouri

WEGENER FARMS LLC, Dawn Wegener, 3659 Rock Creek Valley Rd., High Ridge, MO 63049. 636-376-2324.<dawnquitmeyer@gmail.com><www.wegenerfarms.com> Llamas: Champion breeding stock, herdsire, bred & open females, gelded males. Top Quality fiber, calm temperment, all GORGEOUS! Boarding available.

Ohio

LOFTY PINE ALPACA & LLAMA RANCH, 2682 Cty. Rd. 62, Lindsey, OH 43442. 419-665-2697 <loftypine@yahoo.com> Alpacas & llamas starting at $300. Pet, 4H, Guard, breeding, show.

Vermont

NORTH OF THE ANDES ALPACAS, Rhonda Henning, 6394 Chester Arthur Rd., Enasburg, VT 05450. 802-933-5166. <northoftheandes@myfairpoint.net> Huacaya. Fiber or pet males $300, bred and open females starting at $800, all ARI registered. Email for pictures.

Wisconsin

DREAM CHASER FARM ALPACAS, Ann & Maurice McKercher, 6106 S Dedham Rd., Foxboro, WI 54836. 715-399-8527 Cell:218-348-4823.<amckercher56@yahoo.com> <www.alpacanation.com/dreamchaserfarm.asp> Quality fiber and breeding stock for sale. $400 and up.

Bullfrogs

Idaho

RANA RANCH BULLFROGS, PO Box 1043, Twin Falls, ID 83303-1043. 208-734-0899. <phrogpharmer@aol.com>American Bullfrogs (Rana catesbeiana). Deep soothing music on your pond. Purpose bred bullfrogs-healthy, hardy and prolific. Free info sheet.

Capybaras

Texas

CAPYBARAS, We have them, adults, subadults and seasonal babies. Quality, healthy, free range, non-stressed animals. Also Huacaya alpacas. Bill Schuchman, Jourdanton, Texas. 830-277-2149. <alicemarley7@yahoo.com>

Cattle

Kansas

LA DORADA, Elizabeth Lundgren, D.V.M., 22484 W. 239 St., Spring Hill, KS 66083. <watusi@aol.com><www.ladorada.com> Ankole-Watusi cattle.

UNDERHILL FARMS, Lynn & Karen Kaufman, 187 21st Ave., Moundridge, KS 67107 620-345-8415. <info@underhillfarms.com> <www.underhillfarms.com> Belgian Blue Cattle.

Nebraska

BOHATY'S BRITISH WHITES, Walter & Nancy Bohaty, 1371 42nd Rd., Bellwood, NE 68624. 402-367-4741. <nbohaty@gmail.com> <www.britishcattle.com> Registered British White cattle.

Ohio

RIVERVIEW FARM, Fonnie Thoman, Crown City, OH. 740-256-1724. Miniature Jerseys–semen available. Also miniature horses. <www.miniaturejerseys.com>

Oregon

WHISPERING HILLS FARM, Joe Schallberger, DVM, PhD & Sue Schallberger, DVM, 6515 Kurtz Rd., Dallas, OR 97338. 503-704-2408.<whisperinghillsfarm@gmail.com> <www.whisperinghillsfarm.com> Polled Shorthorns. Fast growing grass-fed Shorthorn genetics. Also Suffolk sheep.

Texas

AAVALON FARM, Sharon & George Adams, 1059 AnCR 468, Palestine, TX 75803. 903-549-2036. <aavalonfarm@hughes.net> <www.aavalonfarm.com> Belted Galloways. Semen available. Visitors welcome.

Dogs

Oklahoma

AMERICAN WORKING FARMCOLLIE ASSOCIATION, Elaine Reynolds, HC 1 Box 23, Felt, OK 73937 920-857-6979.<farmshepherd@yahoo.com> <www.farmcollie.com> Multipurpose Farm Dogs: English & Australian Shepherds, Standard & Border Collies, Shetland Sheepdogs and Kelpies.

Tennessee

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West Virginia

TIMBERS CROSS FARM, Sue Dochan, HC 75 Box 32, Strange Creek, WV 25063. 304-765-5453. Maremma/Pyrenees Crossbred. Neutured & vaccinated. Sold as working pairs only. Started pairs $500 / Experienced pairs $700. Pups available occasionally, $150 each. Buyback guaranteed.

Equine

Ohio

STRASSERHUTEN FARMS, Robert & Corinne Strasser, 4316 Hattrick Rd., Rootstown, OH 44272-9770. 330-325-1373. <rstrasser@neo.rr.com> <www.strasserhutenfarms.com> Irish Dexter cattle, miniature donkeys. Grass-fed freezer beef for sale.

Game Birds

Minnesota

OAKWOOD GAME FARM, INC., PO Box 274, Princeton, MN 55371. 800-328-6647. <oakwoodgamefarm.com> We sell day-old pheasant and chukar partridge chicks and eggs. Ask about our new smaller quantities on eggs and chicks.

Wisconsin

PURELY POULTRY, PO Box 466, Fremont, WI 54940. 800-216-9917. <Chicks@PurelyPoultry.com> <www.PurelyPoultry.com> Indian Red Junglefowl, Guineas, Peacocks. Ducks: Mandarin, Ringed Teal, Whistling Ducks, Wood Ducks, Mallard Ducks, Swans: White Mute, Australian Black, Trumpeter, Whooper, Black Necked. Quail: Northern Bobwhite, Jumbo Bobwhite, Texas A & M, Valley, Gambel, Blue Scale, Mountain, Mearns. Partridge: Chukar, Hungarian. Ringneck Pheasants: Chinese, Jumbo, Kansas, Manchurian Cross, Melanistic Mutant. Ornamental Pheasants: Red Golden, Yellow Golden, Blue Eared, Brown Eared, Lady Amherst, Silver, Timminicks Tragopans. Wild Turkeys: Eastern and Merriams.

Goats

California

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This Golden Comet hen is named Louise. Photo courtesy of Marietta Mallon, South Portland, Maine

After chores:

The Mother's Day Miracle

By Rebecca White Body

"Oh, no," I murmured, clutching my laundry basket and staring in horror at the trail of chicken feathers that began by the garden and ended abruptly by the clothesline. The trail was so long and the feathers so copious, that I couldn't imagine any one of my five chickens surviving this attack. But which one was it? Eleanor, the matriarch who defied her age by laying eggs despite her advancing years? Minerva, the Chicken Whom No Pen Could Contain? She'd been engaged in a battle of wits with me for several years, refusing to stay in her enclosure when I tried to lock her in at planting time. She generally won. Had a predator finally outwitted her? Or, even worse, was it one of the Little Chickens, purchased last Easter as chicks and lovingly raised by my son and me?

I rushed to investigate. A little chicken! I could tell by the feathers it was one of the three Golden Comets. But which one? And where were the other four? All five had been out free ranging because, at this early point in spring, the garden was mostly unplanted. Now, however, there was no sign of any of them. Had the survivors been scattered? Were they too traumatized to come home? Had the murderer gone on a killing spree and taken all of them?

There was no time for speculation, though; there was laundry to be hung and a bag of onion sets to be planted. I got to work, thinking dark thoughts about what a true bummer of a Mother's Day this was turning out to be. Even so, I couldn't stop myself from pausing occasionally to gaze hopefully around the yard. Nothing.

The last onion was planted and all hope was lost when I looked up one more time and saw them. Standing on a hillside, silhouetted against the sky like the heroes in a low-budget Western, there they were—all five chickens! They wandered down to investigate my work. The backside of one was a little ragged, but they were otherwise none the worse for the wear. I scrambled to find my husband, yelling, "They're alive! It's a Mother's Day miracle!"

"That's great!" he replied enthusiastically. (He could now scratch "Find replacement chickens to console grieving wife" off his to-do list.) Nevertheless, he was properly supportive, and all was well once again. To this day, all five chickens burble contentedly and peck at insects in the enclosure of which they're no longer allowed to leave. I felt a bit guilty about their imprisonment at first, but I've concluded that the 25 by 25 foot space is hardly a Chicken Penitentiary. Even Minerva seems to have learned her lesson and is no longer obsessed with escaping. The four younger chickens produce eggs almost every day, and Eleanor occasionally lays one when she's feeling ambitious.

This world is full of much bigger miracles—unlikely rescues, strange coincidences, inexplicable events. Walt Whitman, however, raises a good question in his poem "Miracles." He asks, "Why! Who makes much of miracles? As to me, I know nothing else but miracles…." He goes on to list ordinary sights and events that are, when you think about them, truly amazing; he includes everything from eating dinner with his mother to watching bees swarm around a hive, to seeing his own reflection in a mirror. He concludes, "To me, every hour of the light and dark is a miracle,/ Every cubic inch of space is a miracle…What stranger miracles are there?"

I will never again eat an egg without reflecting on how very right he is.

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