

The magazine of modern homesteading

COUNTRYSIDE

& Small Stock Journal

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FEATURED PHOTO



We enjoy the bluebirds in our McVeytown back yard. These babies seem to be saying "Hurry up Mom, we're really hungry!" [Ruth Zook, McVeytown, Penn.](#)

Here is a picture of my grandson and me collecting eggs. [Tom Shepard, Burlingame, Kan.](#)





View of our barn in the Missouri Ozarks which operates on solar and collects rainwater, even to the livestock tanks! 265 acres of secluded self-sufficient paradise. [Christina Bredekamp, Granbury, Texas](#)



This girl's name is Bonnie here on White Eagle Ranch in Fincastle, Virginia. [Alex Kamwell, Fincastle, Va.](#)



Alivia Mary Bundy, our granddaughter, just loves all kinds of animals. She can tame anything! [Susan Little, Kanab, Utah](#)



Here is our Rhode Island Red rooster guarding all of the hens as they peck the bugs from underneath my wife's rose bushes. [Dion Byrd, Laurel, Miss.](#)



Our Pilgrim gander, Boris, takes his first look at the outside world while being cradled with his mate, Natasha. [Jay Winslow, Kingston, N.Y.](#)



Two of our Nubians, Leela and Glen, all tucked out after an afternoon of romping and frolicking. Being a cute baby goat is hard work! [Lynne Reid, Elverson, Penn.](#)

COUNTRYSIDE IS PROUD TO PRESENT AN ON-GOING PHOTO CONTEST. SEND US PHOTOS FROM YOUR HOMESTEAD— each issue's "Featured Photo" will receive a **FREE** COUNTRYSIDE t-shirt!

E-mail your photo(s) as jpeg attachment(s) to friend@countysidemag.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.

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On the cover



A boy and his piglet at the White Bison Farm in Pennsylvania. Learn more about the farm and how to ensure piglets are born safely on page 60.
PHOTO BY DEWIE VIEIRA

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Dear COUNTRYSIDE readers:

We wanted to write a note to let you know about the changes you might be seeing to your magazine. After receiving a lot of feedback from our readers, we decided to go forward with a redesign. We believe you will find our magazine still chock full of modern homesteading content, but now also easier to read and navigate. It's important that we can easily explain the complicated subjects we cover, and by looking more closely at how we design our magazine, we are gaining more tools to present information clearly, accurately and effectively.



If you have any concerns or questions, please let us know. In summary, we are not changing the focus or topics we cover, just the look and presentation of the pages themselves. Thanks for hanging in there with us through this change.

RYAN SLABAUGH
Editor, COUNTRYSIDE

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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Old Henrys

COUNTRYSIDE: We can relate to the Jan. 2015 article on “Old Machines,” by Dave Boyt.

We acquired our 8N, 1951 vintage, back in about 1980. It was well-used then, but after a major “tune-up,” which included fixing the wheel-bearing repack and the R & R of the hydraulic pump (within the transmission), which is made of cast iron — they don’t make them like that anymore — and replacing the exhaust system and a few more fixes, it was ready to go, still retaining the original 6-volt ignition system.

It “pumps” a little oil on no. 1 cylinder and fouls the spark plug about once a year. No big deal.

The biggest expense in the past 30-plus years has been tires. Rear 27-inch tires do not come cheap, but one will last a lifetime.

We utilize our 8N to pull a five-foot brush-hog, a 16-foot tandem trailer, a round hay bale buggy, a five-foot grader blade, a five-foot tandem disc-harrow and a homemade pine-log skidder. It’s a versatile little tractor, definitely.

Henry Ford and Ferguson knew what they were doing when they came up with this 4-cylinder engine, which has been the “basic 4-cylinder” engine, used by Ford Motor Company, utilizing the same crankshaft and block configuration up

into the 1980s or later. Not bad for Ford Model A automobile engine!

The “Old Henrys will never die!”

Reuben Grassl

Shiro, Texas

Looking Up on the Homestead

COUNTRYSIDE: I recently posted this on my Facebook page and many followers suggested I publish it.

COUNTRYSIDE is my favorite homesteading magazine, so here it is to be used at your discretion.

Seems like I’m always sharing a thought with folks and hoping they don’t grow tired of it. As I sit this morning focused on a daily devotional about helping others, I’m reminded of the lifestyle my grandparents lived and tried to teach me. It just took me a few years during my adult life to remember it all and then come full circle to live it again.

I believe homesteading is not only a physical way of living, but a mental one, too. After all, many folks homestead today on a small lot in an urban area or a rooftop in New York City. But most of us probably homestead in the country in hopes of taking advantage of all it offers. My grandparents were true through-and-through country folks. They didn’t seem to have much money, but they had grit. They grew almost all of their own food, lived in what we would classify today as a tiny house, primitive at that, practiced frugality out of necessity, and seemingly found contentment in every aspect of their lives. Pap was a carpenter by trade and Granny was a wonderful homemaker. I spent much of my childhood years in their company. We hauled water from a spring in the hillside, which was located about two miles from the house. We heated with a potbelly stove. Granny had a flock of chickens that gave us eggs almost every day, and then Sunday dinner on occasion. I still remember her crying every time she had to butcher one. Pap did small carpentry jobs and made porch swings for a living.

There was no indoor plumbing until the early 1970s, and that was cold water only. I finally convinced them to let me install a hot water heater in the late 1980s. An outdoor toilet and chamber pot was a way of life. And if you used the chamber pot, you would be responsible for cleaning it.

Both Pap and Granny lived into their mid-90s. I was always of the impression that they just got by. It goes without saying that I was a bit surprised at the size of their bank account when they passed on from this earth. But their most precious asset undoubtedly was the number of friends they enjoyed throughout their lifetime and the way all of them helped each other in life. Granny used to sit and read through each and every Christmas card they received. Folks seemed to always write a few lines in the cards, even though they just lived a mile or so down the road and saw Pap and Granny on a weekly basis. I guess that’s not a big deal, except Pap and Granny would receive upwards of 200 cards every Christmas up until their friends started dying off.

I’m entering the 17th year of owning the property my Pap and Granny homesteaded most of their adult life. I live in the house I helped them build when I was a little boy. The precious memories I have from life with them here are worth more than any other gift I could’ve ever been given by them. But most precious of all those memories is how homesteading and country life back then was built around friendships and helping to carry each other’s burdens. People didn’t wait for a full-blown crisis to occur before showing up to help others. They maintained regular contact with each other so as to help head off a pending crisis. Sure, there were squabbles from time to time, but they soon passed and everybody was back to being friends.

We certainly live in a different world today, but Pap and Granny believed they, too, lived in a different world as compared to their parents. Homesteading is a unique way of

living. I think it can bring a great sense of joy and peace to our hearts and minds. Homesteaders by nature seem more apt to surround themselves with like-minded friends. It presents us with an opportunity to meet new friends in a way Pap and Granny never knew would exist. And it presents us with a wonderful opportunity to build friendships and share information with each other, help carry the burdens of others, all the while working diligently to set an example for those who so desperately want the lifestyle we enjoy, but have yet to make the choice. Lastly, and maybe most importantly, homesteading can help us keep an optimistic viewpoint about our fellow man in a world that can sometimes be difficult to do. Wishing you the best in your venture.

Dave Clark
Holbrook, Pennsylvania

A Trick for Homemade Yogurt

COUNTRYSIDE: I have found the easiest way to make yogurt that I've ever seen. Using a quart/liter of milk, add dry milk granules, a half-cup to a full cup (not necessary to measure) and heat in microwave to 115°F. My microwave takes two minutes and 55 seconds to bring it to that temperature. I use store-bought milk so I don't need to pasteurize first. Add about a tablespoon of yogurt to that and stir well. Pour into serving-size containers and set them into a pan to keep them from tipping. Put them into an oven that you have pre-warmed, and turn on your oven light. That's all. I usually leave mine in there for about 10 hours. The oven light keeps it at a perfect temperature to incubate.

Another tip: When I can fruit I like it to be nice and sweet so I use a medium to heavy syrup. However I don't want to consume all the calories in the syrup when I eat the fruit. So after the fruit has all been used out of the jar, I pour the leftover syrup into a container that I keep in the freezer. The next time I can fruit I thaw the frozen syrup and use that to sweeten it. I find that the amount of syrup doesn't decrease much, so you only have to make up a little fresh to add to it. I do add a

bit more sugar even if I don't need to make up more syrup, since the previously canned fruit has absorbed some.

Great magazine, thank you!

Joyce H. Malone, Wisconsin

If you use store-bought yogurt to start your first batch, make sure it has live and active cultures.

A Few Notes for COUNTRYSIDE

COUNTRYSIDE: As a teenager listening to elders telling their stories about coming from their native lands to America or the farm stories of those growing up in the Wild West era, I sat mesmerized. Those stories included Indian attacks and how settlers came upon solutions that allowed pioneers to live in peace with nomadic Indians. Pioneer women would bake bread and sweets, placing the food on a fence post at the end of their property. This offering sufficed the Indians as they traveled between their winter and summer grounds. In return, the Indians would not steal the children, especially blonde-haired children or the livestock of the settler.

Another story is about a monastery located 25 miles from here that was built pre-cavalry days, the 1840s. The tumultuous times of pioneer and Indian days left scars inside the chapel made by rifle shells and arrows embedded in the plastered walls and wooden beams that are still there to this day. The monastery now houses Teen Challenge of the Midlands in Colfax, Iowa, a faith-based program assisting people with addictive behaviors.

With all the knowledge and access to those who lived those days, imagine our delight to learn more facts and tidbits of information from Shirley Benson in Bruce, Wisconsin (**COUNTRYSIDE**, Volume 98 Number 3 May/June, 2014, "Canning Butter and Cheese"). We always look for her articles with great anticipation. Preserving meat in ovens, we knew; nonetheless, what we did not know was that you could can butter and cheese. Mom did not know you could can butter and cheese, either. However, Mom was an orphan during The Great Depression

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and World War II. Others we asked did not know and still others could not remember if they ever knew it.

From June to October of 2014, we went through a grueling experience to get our homestead kitchen up to Iowa state codes for a food-processing plant license. We sell processed foods from our harvest of fruits and vegetables, selling enough to enable purchases of produce from other local growers and homesteaders. The state inspector (during his second seven-hour visit) stood in the middle of our kitchen, and when asked the same question about butter and cheese, he said he knew. Yet he seemed surprised by the question. At least he became quiet for a while as he watched the steps taken to make and can strawberry jelly. (He finally approved the food-processing plant license for the kitchen, after Tim made a kitchenette for our personal use aside from the main kitchen.)

So thank you, Shirley Benson, a mentor for butter and cheese canners worldwide. All thoughts assuaged on how pioneer women stored butter other than in the ground, wells, streams and springs. To sell home-canned products, our kitchen must have a person FDA certified in hermetically sealed (having an airtight seal) items. They use the same methods Mom and Grandma used, so Mom and Grandma really did know what they were doing and statistics prove it. From the fda.gov site, there are these stats for 1990 to 2004 on food borne illnesses: more than 31,000 cases of illness were attributed to produce. Food product percentage of contribution: Salad greens/lettuce, 36 percent; fruits/berries/melons, 17 percent; vegetables, sprouts, 29 percent; home canned foods, 3 percent; and processed retail, 15 percent. The stats prove it: home canned products caused only 3 percent of foodborne illnesses.

In closing, we much appreciate COUNTRYSIDE and its nice new format. My husband, Tim, loves the pictures, and reading it cover to cover takes about three days to finish because I am a slow reader.

Moreover, if the editors accept further manuscripts about the exciting new farm/homestead income that we have stumbled across, you could hear more from our corner of the world. I have a lot more stories to tell, as well as my husband, Tim, who is 50 percent Native American—Kiowa Tribe—and me, I am Scotch-Irish.

Cyndy McNaul-Nelson
Searsboro, Iowa

Look for stories from Cyndy in upcoming issues.

Vegetarians are More Efficient than Meat-Eaters

COUNTRYSIDE: In the March/April edition on page 95, Becky asked readers to respond to how they can efficiently utilize their land. Here is an idea that is attracting international attention: Become vegetarian.

Eating the foods you can grow is more efficient than feeding animals and then eating animals. This could mean keeping some chickens for their eggs, a few goats for their milk (I understand that goats are more efficient than cows), and growing a lot of your own food.

If you did not want to become vegetarian, you could adopt a limited meat consumption plan that would consist of eating the extra chickens and goats that would be a byproduct of keeping chickens for their eggs and goats for their milk. Another idea would be to build a pond for some fish.

Reading the article about wells, springs and cisterns made me think about the time I used to have a spring behind my house. The spring provided water for three houses and was well designed. A tiny creek flowed down the mountainside and down over a rocky overhang, creating a tiny but pretty waterfall. Back under the overhang was a spring. In dry weather only the spring continued to flow. A trough had been made from aluminum sheet metal to catch the trickles of water flowing out of the cracks in the rock. This carried the water just a few feet to a 100-gallon reservoir. The reservoir was made out of stones that

were naturally present and covered with metal roofing. Only the mortar and roofing needed to be hauled in.

A two-inch pipe carried the water from the reservoir to the springhouse, which was about 600 feet away. The block springhouse contained a 2,000-gallon stainless steel tank that collected the water. The top of the tank was just three or four feet lower than the reservoir. I remember being amazed at how during a dry spell a small pencil-sized stream of water flowing into that tank could provide water for three houses. Inside the tank was a standard 240-volt submersible well pump.

The pump was operated by a timer. The timer was set to come on three times each day. The water was pumped up the mountainside to another tank about 4,000 gallons in size. The amount of time the pump would be on was estimated and sometimes the upper tank would overflow, but having a little wasted water was more practical than to have 1,000 feet or so of wire for a float switch. The pipe to the upper tank could not be buried in some places because of exposed rock. In these exposed areas the pipe was wrapped in insulation. The insulation by itself was not enough to prevent freezing of the two-inch pipe, so during the winter a 3/8-valve was opened that would drain water back through the two-inch pipe from the upper tank back down to the lower tank located in the spring house.

So whether or not the pump was on, a small amount of water was always flowing back down into the lower tank, preventing freezing of the exposed pipe. Freezing of the upper tank was prevented only by its size and its south Tennessee location. The three houses were supplied with water by gravity pressure from the upper tank. The system was well designed. Hopefully telling about it will help provide someone with the needed insight to successfully utilize a spring!

Eric Witter
Georgia

Warning about Glyphosate

COUNTRYSIDE: A word of warning to all gardeners: Don't use straw for mulch. It is very likely to be contaminated with glyphosate (Round-up).

Glyphosate is used in three different ways that can have a negative effect on our gardens.

(1) Glyphosate kills broad-leaved plants. Weeds, yes, but also lettuce, chard, spinach and other broad-leaved plants that we eat.

(2) Glyphosate kills bacteria. The soil is a living web of tiny organisms such as yeasts, mycorrhizae and bacteria. These microorganisms work together to transform plant and animal matter into water-soluble nutrition for plants. If the bacteria are killed, the soil is no longer healthy.

(3) Glyphosate is a drying agent. It is sprayed on oats, wheat and other grains to dry the stems before harvesting. Those stems are straw.

And if all of this doesn't sound bad enough, glyphosate can be reactivated by phosphate. That's the "P" in NPK on fertilizer bags. This means that the effects of glyphosate can continue in the soil for many years.

What can we use for mulch instead of straw? Leaves, cardboard, grass clippings, wood chips, and shredded newspaper are alternatives. So is straw from organic grain farmers, if they have any for sale.

Celeste Lemire
London, Ontario, Canada

Thank You

COUNTRYSIDE: I have enjoyed your magazine from the first one I saw. It was passed along to me from a niece and two sisters of mine. Thank you for all the information and help to so many through the years.

Glenda Hill
Tennessee

Lessons from a Fellow Homesteader

COUNTRYSIDE: My husband and I find ourselves in a unique farming position. At a local farm 2 1/2 miles from our home, we house 14 Shetland sheep, three Cashmere

goats and three Alpine goats (along with four ducks). We are at the farm daily to take care of the animals, including milking twice a day.

The relationship we have with the farmer is an educational exchange. He is allowed to use the animals for school field trips, farm study, and for summer day camp in exchange for the housing. We have done this for eight years and it has improved our quality of life in an area that we would not have otherwise had access to.

Over the past eight years, I have watched as the farmer has worked with myself and others to promote local awareness environmental education, and grow food in a responsible way. I have seen him troubleshoot challenges with others in a positive way. From all that, I have learned over the years, from him I have learned that without respect for people, family and self, success would feel very empty indeed. This farmer has taught me how to communicate with others, share information freely and grow food responsibly, and to do it selflessly with patience and respect for everyone involved.

Lydia Francis
Bordentown, New Jersey

Time for the Annual COUNTRYSIDE Reunion

COUNTRYSIDE: It is time, once again, to invite all COUNTRYSIDE readers to attend the annual COUNTRYSIDE reunion at our homestead we call "The Poor Farm" in southwestern Indiana.

This year's dates will be July 2-5. There is no charge to attend this event and you are welcome to camp here, also without charge. For those who have never attended, it is an opportunity to meet like-minded people and to learn from each other. There are many talks and demonstrations given each day on a wide variety of topics. If you have a topic you would like to talk about, you are welcome to do so. You will also have a "tour" of our homestead where we have more than 5,000 square foot of organic (not certified) gardens, fruit trees, berry bushes, chickens, and a greenhouse with an aquaponics set-up. We raise grass-fed, chemical-free beef cows

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and organic chickens (not certified). Robert is self-employed and runs a sawmill. We filter used cooking oil for use in diesel equipment.

We have an outdoor wood-burning boiler, which heats the house, the summer kitchen, the water for the house and the summer kitchen, and the oil tank in the shop. The summer kitchen is a building used for canning, freezing, dehydrating, butchering, and making soap, wine, and cheese, etc. It is also a "hang-out" location, where you will probably spend some of your time here. Those attending are guaranteed to learn something, and to meet some great new friends.

Note: Camping is primitive with a limited number of spots where electric hook-up is possible. Please reserve these spots if you need one. If all are not reserved, they will be available on a first-come, first-served basis. Primitive camping is not too difficult for most since we have a campfire, gas stoves, ovens, and both gas and charcoal grills (complete with homemade charcoal) available for cooking. People often collaborate and create "community" meals throughout the reunion. Hot and cold running water is also available for all, as well as wood-fired hot showers. If you need motel info, we will help with that also.

For information, call Robert at 812-393-0160 or call or text Yvonne at 812-686-3805. You may also contact by email: yvonnec.0104@gmail.com.

For those who prefer, our mailing address is: Robert and Yvonne Hardy, 13738 N CR 10W, Gentryville, IN 47537.

Yvonne Hardy
Indiana

**Warning about
Yew Poisoning**

COUNTRYSIDE: Please make sure that your sheep don't have any access to yew shrubs. We didn't realize that they are extremely poisonous and threw some prunings into the sheep pasture for them to nibble on. We have only a few

sheep just for spinning fleeces and within a few hours we lost three of our best wool producers. There is no antidote. A sad day!

Joyce H.
Wisconsin

Lighting Suggestions

COUNTRYSIDE: Here is another suggestion for emergency lighting or off-grid use: solar garden lights. The kind on stakes can be found in a dollar store for \$1 each. Take a bucketful out in the sun, and then stick them in between books on the shelf, in a box of stuff, or anywhere. Although they are not bright enough to read by, they're good for finding your way around, with no fire danger.

Judy Benevy
West Virginia

A Sympathetic Ear

COUNTRYSIDE: We aren't online, but we want to respond to Alvin Kadatz problem (Jan./Feb. 2015) "Don't landowners have rights?"

We have a lot of experience in these matters and sympathize with his problems. We found out the same thing—that the terms and conditions of an easement are for all practical purposes "unenforceable." Even though our easement agreement was made through a court action. So we said the same thing, "Don't we have any rights?"

We solved our problem by understanding the role that law enforcement plays in any given community. In our town, damage to personal property is a matter for small claims court, which you can go to without a lawyer and sue up to \$3,000 in damages per incident for just a \$10 filing fee. After you have three judgments against your opposing party, you are then awarded triple damages in your judgment. So let the battle begin.

Enforcement of the existing easement is a very expensive and long battle to undertake, but damage to personal property is a battle you can win. Good luck.

David and Jean Jacques
New York



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Six Steps to Starting and Saving Heirloom Tomatoes

BY
MELISA MINK,
MISSISSIPPI

IF THE FIRST TOMATO of the year is something you long after, this is for you. Growing and saving your heirloom tomato seed is something that will benefit your pocket book as well as your belly. And just think about the looks you'll get at the local farmers market when you show up with striped green or orange tomatoes! They really are fun to grow, and they are nutritious too. Each year, we grow hundreds of our own plants by seed, save tons of money, add to our diet and wow our friends and neighbors.



Save your seeds and you too, can grow colorful heirloom tomatoes.

ALL PHOTOS BY MELISA MINK

STEP 1: GET YOUR SEEDS

To start your own collection, begin simply by saving the seed from the choicest tomatoes you can find or grow. If you want to try some new ones you don't have access to, take a look at some of the heirloom catalogs and browse online. You will need to get your seeds ordered in January. This not only helps with the winter blues, but allows you time to grow your plants from seeds.

STEP 2: PLANT SEEDS

You will need to start the seeds in February or March. All you'll need is your seed, seedling tray pots, a grow light and some old recycled cups. Get those colorful and crazy seeds into your wetted seed tray pots, place a plastic cover over them and place on top of the fridge for warmth. (Be sure to label them if planting several varieties.) The warmth of the refrigerator will help the trays stay warm and bring your little seedlings to life. You'll have baby plants within a week, two at the most. This way of starting seed also works for peppers.

STEP 3: GROW SEEDLINGS

Next, move the trays of seedlings under a grow light. It needs to be close to the seedlings—within 10 inches, or they'll become spindly. You'll need to check and make sure they get water. Under the light, they can get dried out and die. You also should make sure they are not too wet or they will rot at the soil line. This is called damping off, and it's not good. You want them to stay damp not wet, or too dry.



To save your seeds, place those from the best-looking fruit in water for a few days, rinse with water, and allow the seeds to dry on a paper towel (or coffee filter). You'll be rewarded with delicious colorful tomatoes next summer!



STEP 4: TRANSPLANTING

Next, transplant them into recycled Styrofoam cups after the second set of leaves begin to grow. These are the "true leaves." If they begin to look leggy or grow too long reaching for the light, just plant deeper into the pot or cup. The plant will grow roots along that stem. The deep planting is good, as there will be more roots to soak up nutrients. I recycle disposable cups and use a nourishing potting soil for this step. Buying pots can get expensive.

STEP 5: GROW AND MAINTAIN

You will then be watching and watering for a few weeks. Once the stems look a little more green than white, and warm days permit, start setting outside for two hours at a time. This will "harden off" the plants to real outside weather. Also, keep an insecticidal soap spray on hand for gnats or aphids.

Once you've done this on and off for a week or so, it's time to find a

They can handle temperatures as low as 40°F, but no frost whatsoever.

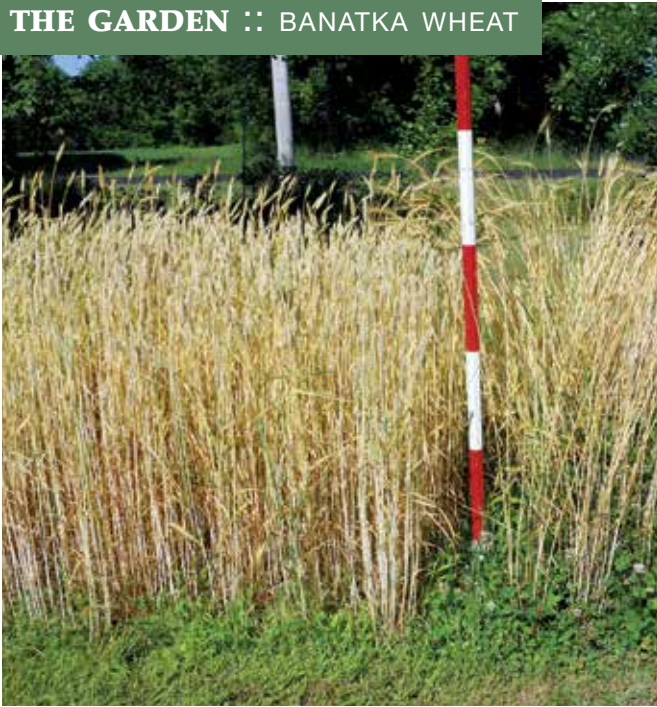
warm, sunny place or greenhouse to leave them in more often. You can build a makeshift one with an old glass door, or use a cold frame. If it's too sunny though, they could cook. Just make sure it's ventilated well and the glass is not too close to the plants. They will also need to be kept frost-free at night. When early spring temperatures still get pretty low, just bring them back inside. They can handle temperatures as low as 40°F, but no frost whatsoever. You'll know it's chilly for them if the stem is a little purple.

STEP 6: HARVEST

Once summer is upon us, you'll have your own hand-picked varieties no one else has. From purple to orange, green or white, it

can be a tomato show of color. And once you've picked them and are enjoying the harvest, don't forget to save your seeds. Just place your best-looking fruit's seeds into a bowl or cup of water. It will need to sit for three or four days and grow mold. Yep, those funky bacteria will do you good deeds. It's breaking down the gel sack around the seed and allowing it to be in a usable condition. Once the three days are up, scoop off the mold and wash the seeds in a screen-style strainer with cold water. Then place on a labeled paper towel to dry and voila! Now label a plastic freezer bag and place in freezer, and share a few with friends and family. You're ready for the next season! ©

Melisa Mink, Homestead Mama



Banatka winter wheat grows twice as high as normal wheat, which can add to the yield.
PHOTOS COURTESY BENJAMIN HOFFMAN

A Guide to Planting Banatka Wheat

BY
BENJAMIN
HOFFMAN

IRAN ACROSS BANATKA WINTER WHEAT, a Hungarian landrace variety, in the FEDCO catalog, and it sounded like an interesting variety to play with. So I bought an ounce for \$20 and planted it in the side yard with the idea that if it had good taste, the first year's harvest could be used for seed. Most heritage wheats develop large root systems (given enough space) and are twice as tall as modern varieties. The growth and yield were impressive, but bread samples baked by three of my baker friends were extraordinary.

HOW TO PLANT

The Banatka guru, Eli Rogosa, recommends planting seeds at 8-inch by 8-inch spacing to get good yields. First, I tried my Earthway seeder with a modified carrot seed plate; it worked well for naked oats and spring wheat, but skipped too much with Banatka. So I planted about 500 individual seeds on 8-by-8-inch spacing in mid-September. By June the plants were more than 5-feet tall (too tall for my BOAZ mini-combine) with 10 to 25 tillers each. A potential problem with 8-by-8 spacing is weeds, so shortly after planting Banatka, I broadcast Dutch white clover which produced a lush understory with virtually no weeds.

HARVESTING

Two of us hand-harvested the Banatka plot in 30 minutes on July 23 using Ethiopian hand sickles, cutting about mid-height and stacking stems in a small cart to dry. After drying for several weeks, we threshed with BOAZ in stationary mode. I planned to let the Dutch white clover understory overwinter as a cover crop and inter-plant corn the next spring, but I enlarged the planting area and seeded Banatka again. In fall 2014, I planted two plots to test the feasibility of using the Earthway, one using my modified seed plate,

planting three to four seeds per lineal foot, the other a beet-seed plate with half of the cups taped (about 11 seeds per lineal foot).

The universities of Maine and Vermont have conducted trials of winter wheat for several years, including conventional drilling and harvesting of Banatka. The University of Maine researchers sowed 30 seeds per square foot and harvested 2,660 pounds per acre; I planted 2.25 seeds per square foot and produced 1,556 pounds per acre. With Banatka seed at \$0.04/kernel, the food plot producer is wise to use the 8-by-8-inch spacing. Had we properly calibrated the chaff separator on the thresher, our Banatka yield would have been even higher. As it was, I got 140 ounces from the one-ounce planting.

WEED CONTROL

The 2013 plot was seeded with Dutch white clover, but because of Banatka's height, I tried red clover

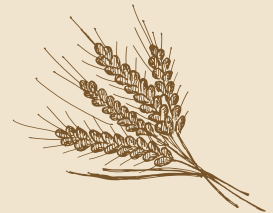
in one 2014 plot. Red clover is much taller and good for hand harvesting, but may be tall enough to be picked up by the combine. We plan to try shims and a longer V-belt in order to raise the in-feed reel to harvest Banatka with the BOAZ mini-combine. First, we will hand harvest the best plants for seed, and then combine the rest for grain.

I also had a trial plot of another winter variety, Warthog, planted in the conventional manner (about 30 seeds/square foot). Its tillering was impressive (as was the taste), so based on Banatka's performance with plenty of growing space, I seeded the 2014 Warthog at three to four seeds per square foot. July 2015 should answer my questions.

If you bake, you might want to try some of the heritage grains to add some pizzazz to your meals. And you might play with spacing of some newer bread varieties. Also, consider Dutch white clover for weed control and nitrogen production. ☺

Planting

Seeds	Sq. Ft.	Yield, Pounds/Acre	Pounds/Seed
UMaine	30	2,660	0.002
BFH	2.25	1,556	0.0166



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A Lesson in Aquaponics

Part 2: Meet Your New Friend, Enthalpy

BY
JEREMIAH
ROBINSON
MADISON,
WISCONSIN

IN THE MARCH/APRIL ISSUE, I introduced you to my little homestead in the city, and claimed that it was possible to grow year-round in a small space — in a cold climate — using aquaponics (fish and plants together). In this issue we get into the technical and theoretical details about the forces of creation that make it possible. And we make a new friend.

Today we get to learn about the most fun subject in all of thermodynamics. Can you guess what it is?

You're right. It's enthalpy!

When we talk about enthalpy, we mean the total thermal (heat-related) energy contained by a substance. In aquaponics, we're talking about the heat contained by your water, your grow beds, the air in your greenhouse, and so on. It relates to temperature, but there's more to it than. And it's a big deal.

It's crucial to understand enthalpy if you want to save energy in your cold climate aquaponics system. To illustrate why I think you and enthalpy should become friends, I'd like to give you a simple quiz.

QUIZ:

1. How many BTUs does it take to raise 10 pounds of water from 40 to 50°F (4 to 10°C)?

2. How many BTUs does it take to raise 10 pounds of water from 30 to 40°F (-1 to 4°C)?

(Hint: The answer to these questions is not the same. See end of article for the big reveal.)

The reason that the answer to question two so greatly exceeds question one is that to get from 30°F to 40°F water, you can't just raise the temperature. You have to change the state from solid to liquid by providing the ice with the heat of fusion.

While raising one pound of water 1°F takes one BTU, changing one pound of ice to liquid water takes 144 BTUs. In other words, it takes the same amount of energy to heat water from 31 to 32°F (-0.5 to 0°C) as it does to heat from 32 to 176°F (0 to 80°C).

When you apply heat to a material to raise its temperature, we call that sensible heat. When you

apply heat to change its state, we call that latent heat. The total (thermal) enthalpy of a material includes both its latent and sensible heat, or: $\text{Enthalpy} = \text{Latent Heat} + \text{Sensible Heat}$.

EVAPORATION

So far we've talked about solid and liquid water, and that's fairly simple (oh sure, easy for me to say). Well, hold on to your hats. Things get complicated when you start talking about water vapor.

You might have thought that we don't have to worry about enthalpy with regard to the liquid-to-vapor transition because we won't be boiling our fish. But you'd be wrong.

Molecules vibrate. Molecules near the surface of a liquid can sometimes vibrate enough to launch themselves off the liquid into the air. This is called evaporation. Molecules crashing into any material and sticking to it is called condensation.

If people evaporated, it would mean that every time anyone got really angry they would shoot off into space. When they cooled off they would fall back down and "condense" into the earth. Might have interesting implications for our culture. But I digress.

The conditions that cause molecules to launch include the temperature of the water and the temperature and relative humidity (RH) of the air. Some examples:



What's a BTU?

In the United States, we measure heat in British Thermal Units, or BTU. One BTU is defined as the amount of energy it takes to raise one pound of water 1 degree Fahrenheit (°F). In Metric, 1 BTU = 1060 Joules and 1 pound = 0.45 Kg.



- At 100 percent RH (relative humidity), the same amount of water evaporates from a surface as condenses on it.
- At 10 percent RH and 100°F air temperature, when you sweat you don't feel it because the water evaporates from your body so quickly. You do get kind of salty, though.
- A tray of water at 80°F (27°C), surrounded by air 80°F and 50 percent RH, about one pound (0.45 Kg) of water will evaporate per square foot (0.09 m²) of surface area per day.

The thing about this whole launching and condensing process is that it involves a lot of energy. Each launching molecule absorbs a ton (0.91 metric tons) of heat on its way up, and releases it all on its way down when it condenses. Half of this heat comes from the air, and half from the surface (i.e. the water or your greenhouse plastic). This heat, called the heat of evaporation, equals a whopping 970 BTU/lb.

APPLYING ENTHALPY IN AQUAPONICS

First of all, you should look carefully at every place in your system where water is exposed

to air. Any exposed liquid surface area offers a place where water can evaporate, taking its 970 BTU per pound along with it. This is also the reason why I sometimes have to heat my fish tanks to keep them at 80°F (27°C) when the outdoor air is 90°F (32°C) and dry.

Evaporation makes trouble for all of us in aquaponics, but here's how you can tell if it's a major problem for you. Each morning in winter, check to see how much ice has frozen on to the inside of your greenhouse plastic. If the outdoor temperature is below zero and you have some ice, don't worry about it. However, if you still get ice when the outdoor temperature is 15, then you have an enthalpy problem.

To resolve your evaporation enthalpy problem, you need to do two things:

1. **Reduce the surface area of water in contact with air.** This includes your fish tanks, grow beds and the surface of your plant leaves. It also includes the inside of your flood and drain beds, because when you drain them they fill with air that can't wait to evaporate all the water left on the huge surface area of your media. Dry air is trouble.
2. **Insulate and air seal the exterior of your greenhouse.** Use double or triple wall glazing. Insulate the north, east and west sides. If you can, insulate the top of your greenhouse on the north side. All of this serves to raise the temperature of the greenhouse surfaces above the dewpoint, or the surface temperature at which vapor will condense. Every drop of condensation that forms in your greenhouse is another drop that has to come out of your aquaponics system.

A LESSON IN A POEM

If you want to live life
without care,
Keep your water away
from the air.
To save yourself some
aquaponic cash,
Store your
heat in liquid water
thermal mass.

— Jeremiah Robinson

Now that you've resolved all your evaporation issues, you should turn to the remaining 144 BTU/lb (334 kJ/kg) that results from melting and freezing. This side of enthalpy will likely work in your favor. Not only does it make it difficult for the water in your system to freeze, but it also gives you a great way to store energy. It stores this energy in something called thermal mass.

Thermal mass signifies an object's ability to store heat. Metal, for example, stores heat very poorly. You can heat a pan until it's red-hot, then let it cool for 20 minutes and touch it with your hands. But I wouldn't do the same thing with a concrete pan — it'll burn you! True, the only reason you'd ever find a concrete pan is because you wanted to do a thermal mass experiment, but still ...

Thermal mass basically correlates with weight. Heavy

things store more heat. But there is one exception to this rule, and it relates to enthalpy.

Liquids near their freezing point contain an incredibly large amount of thermal mass. A 55-gallon drum of water contains 458 pounds of water. To reduce that drum's water from 32 to 31 degrees would release 65,894 BTUs. That's more than some furnaces, and we're talking about one drum.

Cold water is thermal mass on steroids. If thermal mass were NASCAR, cold water would be Richard Petty.

Even better, the temperature we're trying to maintain in greenhouses for cold-weather crops is often at or near 32 (0°C). Having a huge quantity of thermal mass that really, really doesn't want to drop below 32 will help with that. A lot. ©

Quiz Answers: 1. 100 BTU; 2. 1540 BTU

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Wildlife Habitat on the Homestead

Why Making Space for Bugs and Animals will Help Your Land Stay Healthy



Monarch on milkweed

BY ANITA B.
STONE
RALEIGH,
NORTH CAROLINA

WITH AN ABUNDANCE of rural development, only smaller habitats remain for wildlife to thrive. As homesteaders, we can maintain the balance by serving the land. If you ever thought about creating a garden that attracts and helps wildlife maintain its natural existence, now is the time to do it. Woodlands are continuously being developed into roads and buildings. Certifying a homestead habitat will serve a dual purpose by opening a network with other homesteaders and creating your own balanced ecosystem to sustain wildlife and leave a positive footprint for the future.

Several weeks after buying an old home, which required quite a bit of repair, both inside and out, I eagerly repair both, when it dawned on me that there was one major issue I neglected to spot — the lack of a habitat for other critters living in my backyard.

I quickly decided to expand the natural habitat, which not only excused me from a perfectly manicured landscape, but also enabled me to help out those creatures that simply needed food, water, cover and a place to raise their young.

I sat on the ruddy-looking deck across from an old fish pond that also catered to a frog family, and heard the cardinals singing to each other. An area for ducks remained unvisited, but food and water was available. An untrimmed Japanese maple stood sandwiched between two cypresses, both of which

hung lazily over the fish pond.

After much thought, I decided to feed, water and protect any inhabitants within my landscape. So I began to read books on how to establish a wildlife habitat. I quickly discovered I didn't have to become an expert, but just follow the guidelines set up by the National Wildlife Federation (NWF). And as I looked around the yard I saw several places that would invite and protect many critters, including bees, birds and butterflies.

WHY PROTECT?

A major consideration for wildlife protection is to provide wind and safety coverage by offering enough plants and shrubs to camouflage the areas you have selected. Another thought is to provide ample food, including shrubs that offer seeds, nuts, berries, nectar, pollen and foliage. Types of holly provide both excellent cover and offer seeds and berries for the bird population.

I provided clean water from an already existing pond for drinking, taking a dip or two, reproduction, and added a birdbath. For future butterfly populations I set up a "puddling" area where monarchs, yellow and even tiny white butterflies could sip nectar from a newly planted *Asclepias* (milkweed), a butterfly favorite. I even cleaned out an area that seemed to get wet more frequently as wetlands do and planted a rain garden. I wanted all wildlife visitors to be well fed, watered and protected.

In order to offer protection from humans, predators and bad weather, I kept several small brush piles. Instead of discarding broken and dead limbs, I created safe living quarters for the visitors. A word of caution — avoid pruning trees and shrubs during the nesting season, from March through July, because of damage to nests which leaves exposure to predators.

Recently we have heard about the disappearance of bees within our ecosystem. Thousands of these pollinators are needed for

balancing and maintaining the health of the landscape. With the proper landscape plants from which bees can sip, they will find and drink from what is offered.

USE NATIVE PLANTS

Another simple rule is to use native plants and flowers, which, in turn, require less water — thus practicing water conservation, a major consideration in maintaining a habitat. Planting herbaceous plants, those with soft green stems, also provides cover and food sources during the cold season needed by birds and other creatures. Those include the popular *Helianthus* (sunflower), aster, and geraniums. Echinacea (coneflower) seeds are popular during the fall and winter seasons. Sedges including *Carex* provide both cover and habitat. It is no myth that if you find a tree frog residing in your landscape you have done an excellent job because their presence tells you that the landscape is healthy.

Azaleas, holly and hibiscus plants offer fruit and nectar. I planted early fruit producers including serviceberry and American beauty berry.

Vertical vegetation permits ground-dwellers and treetop dwellers to exist in harmony in the same place. The cycle works when leaves fall to the ground and are eaten by leaf eating insects, which provide food for birds and other insects. Carrying the habitat one step further, friendly wildlife landscaping can be done in public places such as schools, work, religious landscapes and other community endeavors. Neighborhood and green space planning require special maintenance and habitats that avoid grassy medians in the center of two-lane roads.

Why Is Wildlife Protection Important?



One statement from wildlife expert, Janet Allen, in Syracuse, New York, who was concerned about the loss of habitat and its effect on wildlife, read, "What if each person was to become a responsible steward of his or her own piece of the Earth? Imagine what a difference that would make". Allen summed it up when she stated, "My backyard has become a microcosm of the whole world for me."

— Anita B. Stone



Echinacea (coneflower)



Eastern bluebird in birdbath

It is no myth that if you find a tree frog residing in your landscape you have done an excellent job because their presence tells you that the landscape is healthy.

Be aware that planting shrubs along roadsides attract birds, which may be killed by automobile collisions. Make sure that forest buffers are more than 100-feet wide when adjacent to wetlands for other species.

LEAVE IT BE (IF YOU CAN)

It is best to leave natural vegetation in place as much as possible when you move into a newly developed neighborhood. I have seen neighborhoods completely devoid of trees, which leave wildlife no place to eat, drink or sleep without invasion from other species, including people. In new areas it is best to cluster homes and leave parts of the forest as green space, which can be used for nature watching or hiking. Native pine and other vegetation are sure to attract wildlife, especially large trees with enough space above and below ground. Sometimes small areas of green space can be connected with forest areas, known as greenways, which provide excellent forage for wildlife.

Sustainable gardening, conservation of resources and welcoming habitat for wildlife creates a community of healthy cycles for everyone.

In the end, we planted the garden for two reasons; beauty and to provide food for wildlife and nectar for insects. Birds and insects feed on blossoms and leaves. Bees spend a great deal of time visiting flower blossoms. We also have resident squirrels, which can be annoying at times, but providing seeds and nuts will keep them happy and healthy. I am not a wildlife expert, but as long as birds, bees, insects and other critters appreciate nature's offerings, I feel that I should play my part in keeping the balance of nature alive. I look forward to leaving a positive footprint across my landscape to protect and keep a clean environment for the future. ©

For further information contact: National Wildlife Federation at www.nwf.org.

For additional certification contact: Native Plant Garden Certification at www.npg.org.

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Barbecue Recipes for Barbecue Season

BY
WANDA
CLARK

MEMORIAL DAY USHERS IN THE warm weather—and barbecue season. If the weather permits, cooking outside boosts flavors and fellowship! I’m always looking for ways to enhance flavors and add variety to everything we cook. Rubs are a great way to enhance the flavor of chicken, pork or beef for grilling. I use dehydrated, freeze-dried, and powdered products to create rub mixes. I use Mason jars to mix and store rubs that are always ready for the impromptu barbeque. Always shake the jar well before each use.

To use the rubs, I typically coat the meat with a small amount of oil—I typically use olive oil. Sprinkle the rub generously onto the meat—patting just enough to make the rub stick to the meat. The flavors are best incorporated into the meat if you place the meat with the rub in the refrigerator overnight. But at our house, I’m often preparing the meat while my husband is getting the grill ready—and we really enjoy the results.

You can create your own rubs by combining spices and flavors to please your family’s taste preferences. I like to create rub mixes that add flavor varieties that are not readily available on my grocery store shelf. These are a few of my favorites you will find stored in my pantry.

Old Fashioned Rub

Great on poultry, pork or beef

- ½ cup rubbed sage
- ¼ cup ground dried rosemary
- ¼ cup garlic powder
- ¼ cup ground black pepper
- 2 tablespoons ground mustard
- 1 tablespoon paprika

Savory Rub

Great on ribs, steaks or burgers

- ½ cup dark brown sugar
- ½ cup paprika
- 1 tablespoon mustard powder
- 1 tablespoon onion powder
- 1 tablespoon garlic powder
- 1 tablespoon dried basil
- 1 ½ teaspoon ground coriander
- 1 ½ teaspoon ground savory
- 1 ½ teaspoon dried thyme
- 1 ½ teaspoon black pepper
- 1 ½ teaspoon white pepper
- 1 teaspoon salt
- ½ teaspoon ground cumin

Texas Style Rub

Great on ribs, steaks or burgers

- 1 cup dark brown sugar
- 1 cup sea salt
- ¼ cup paprika
- ½ cup chili powder
- 1 teaspoon ground ginger
- 1 teaspoon ground nutmeg
- 2 teaspoons ground dry mustard
- 1 teaspoon ground cloves
- 1 tablespoon hickory smoked salt
- 1 tablespoon dried minced garlic
- 1 tablespoon onion powder
- 1 tablespoon black pepper

Indian-style Rub

Great on chicken or pork

- ¼ cup smoked paprika
- ¼ cup chili powder
- ¼ cup curry powder
- ¼ cup ground cumin
- ¼ cup garlic powder
- 4 teaspoons ground turmeric
- 4 teaspoons ground cardamom
- 4 teaspoons onion powder
- 2 teaspoons dry mustard
- 2 teaspoons fennel seeds
- 2 teaspoons garam masala
- ½ teaspoon rubbed sage
- ½ teaspoon ground ginger
- 1 teaspoon salt
- 1 teaspoon white pepper

Mediterranean Style Spice Rub

Great on poultry or pork

- ½ cup sea salt
- ½ cup ground cinnamon
- ¼ cup ground coriander
- ¼ cup ground cumin
- ¼ cup ground nutmeg
- ¼ cup black pepper

Greek Spice Rub

Great on poultry, pork or beef

- 1 tablespoon sea salt
- 2 tablespoons black pepper
- ¼ cup onion powder
- ¼ cup garlic powder
- 1 tablespoon ground cinnamon
- 1 tablespoon ground nutmeg
- 1 tablespoon dried marjoram
- ¼ cup dried oregano
- 2 tablespoons dried parsley
- 2 tablespoons dried thyme



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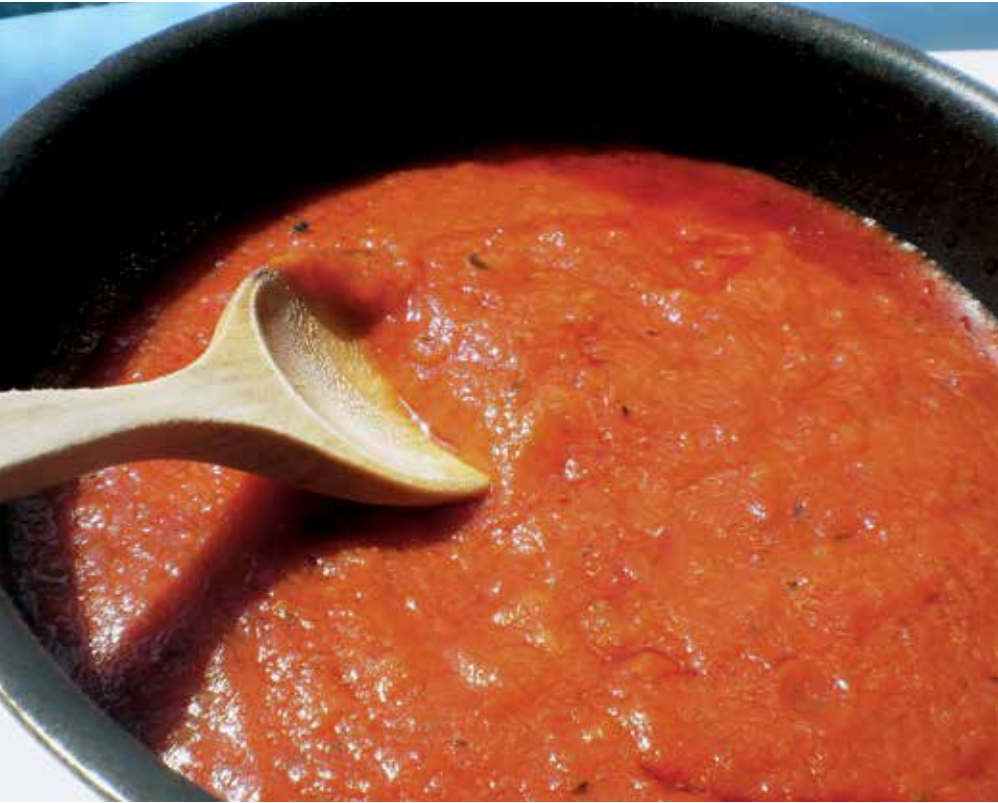
24' diameter greenhouse has 452 square feet

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You can can your tomatoes first, and make sauce later.

Lazy Man's Tomato Sauce

BY
DANIEL
STRAUSS
LOCKPORT,
NEW YORK

GIVE A DIFFICULT JOB to a lazy man and he'll find an easier way to do it." So was the quote from an old issue of *Reader's Digest*. It always seemed to me a waste of time to cook down tomato juice into sauce, so while I was lurking on an online homesteading forum, I found a neat hint about how to make tomato sauce without all the bother of cooking it down on the stove for hours on end. The suggestion was so useful, I had to relay it to the readers of this magazine.

First, core and quarter your tomatoes, place in pot and cook on stove until cooked through.


Secondly, run the tomatoes through a food mill extracting the juice. I usually take the remaining waste and run it through my food mill again to get as much of the pulp out as possible. Now you will have tomato juice. Pour juice into a colander lined with a tight weaved fabric, like a piece of old sheet — flannel works nicely.

Now stir the juice with a spoon, scraping the bottom of the fabric to allow the liquid to pass through. The tomato fragments will remain behind, caught by the cloth.

When finished, you have the liquid separated from the tomato and a thick sauce. If you wish, you can continue to work the tomatoes until it is almost paste. If you go too far and wish it was thinner, just add back some of the liquid removed. Add your favorite spices, or oil if you want it. Now it can be immediately used or canned for later use, or be the base for ketchup.

The beauty of this is, it can be made from already canned tomatoes. Don't have time during harvest to make it? Just can the stewed tomatoes or the juice and finish during the winter season.

Lastly, if the leftover liquid is left to sit over night, the clear liquid rises to the top and any left over juice settles to the bottom. The clear liquid can be ladled away and the juice can be used to drink. The amount will depend on the weave of the fabric. The clear liquid can be used in soups or to cook rice or beans in.

There you have it, the lazy way to make sauce. I hope this helps you save as much time as it did me. 

Ed. note: When we only have a few ripened tomatoes at a time—or little time—we cut the stem off of Roma tomatoes (our go-to variety) and halve, then freeze them in zip freezer bags. This way we can toss them into chili or stews or whatever, or reduce to a sauce. Also, it's a lot nicer to have a steamy kitchen in January than August.



To more quickly make tomato sauce, cook your tomatoes (1), run them through a sieve and pour into a cloth-lined colander (2). Stir the sauce and push into the cloth to extract as much liquid as possible (3).



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Hatching America's Best Baby Chicks



Fresh picked basil

Building Bridges with Basil, Rosemary and Yarrow

BY JUDITH ANDREWS

STARTING A MEDICINAL herb garden in early spring of 2013 was the beginning of bridge awareness—the bridge between fresh herbs and their equivalent essential oils, between traditional Chinese medicine and Ayurveda. Both are so immersed in herbal medicine that the bridges go back and forth with reckless abandon.

I have spent years using herbs and essential oils in my acupuncture practice and with our horses, dogs and chickens—not the cats. They want to choose their own herbs, never oils, when they need them and absolutely refuse my interference.

That a certain stimulus could be given to the brain by inhaling the scent of these aromatic substances ... cannot be doubted.

BASIL

Basil, for example, is building a bridge between my garden and Ayurveda, and the teachings of Hanna Kroeger, an author and veteran herbalist known around the world. Traditional Chinese medicine does not seem to have crossed this bridge. Basil is not listed in any of my Chinese medicine books; nor do I remember studying it in school. I also do not use the essential oil. It is just too strong and does not resonate with me.

Kroeger is a solid proponent of basil and recommends it for indigestion and treatment of gas pains and nausea, and is the carrier for all amino acids and supports the immune system.

With basil, I prefer the fresh herb. Basil is one of the most aromatic herbs in my garden and one of the most useful. That a certain stimulus could be given to the brain by inhaling the scent of these aromatic substances, whether they be essential oils, fresh or dried herbs, cannot be doubted.

So while weeding the basil bed, it is having a medicinal effect with each breath I take. Basil removes mucus from the lungs, helps remove heavy metals from the body, and when combined with cloves and especially cilantro, it helps to remove medical and chemical drugs that are being stored in our fat cells. Basil improves the operation of the liver, and if taken before bed for insomnia and after waking up to enhance alertness, it will act as an adaptation, which means it tones down a deficiency and sedates an excess, or does whatever is needed by the body.

The mature flower head contains the most complete representation of the plant's properties. So I no longer pinch the flower heads off and drop them to the ground, but

make a tea with them flavored with lemon and/or honey, or a tincture preserved with apple cider vinegar or brandy, which last longer and, in my opinion, tastes better. It makes the medicine go down.

Richo Cech, in his book *Making Plant Medicine*, profiles only Tulsi, or Holy basil (*Ocimum*



Rosemary has many medicinal uses.

sanctum). It can be used as a medicinal herb or a culinary one. I have it in my medicinal herb garden as a safety precaution due to culinary incompetence.

Holy basil is traditionally used as a tincture, tea or decoction. It serves to sharpen the mind, treat gastro-intestinal distress, coughs, bronchitis and skin diseases, supplying us with antioxidants and it is anti-bacterial. The powder of the dried root is

said to be an effective analgesic for insect bites and stings. I've never tried this, but I will.

As a tonic herb, it is a wise choice to treat adrenal burnout, normalizing blood pressure and blood sugar imbalances while nourishing the nervous system. It brings you into a place of deep calm and clear mindedness, centered, alert and yet calm.

I always grow several different basils, so I make as much pesto as time allows and freeze it. Since this is considered cooking, and I don't like to cook and am not even a decent cook, I feel very pious as I enjoy the summer flavor in the winter.

ROSEMARY

Rosemary, another herb traditionally considered to be primarily a culinary herb, has many medicinal uses. As a matter of fact, I use it more for medicinal purposes than culinary. But one would jump to that conclusion from reading the above.

Rosemary puts me in mind of yoga class, or I could say, preparation for boot camp. Some of the classes I've attended have been held in places that smelled like a damp, used, closed-up sweat sock—not the best aroma to stimulate the meditative state said to be induced by the practice of yoga. So I bring along a bottle of rosemary essential oil, therapeutic grade. Drop several drops of the oil in the palm of your hand, rub your hands together and cup over your nose breathing in deeply. It helps to clear the mind, bringing circulation to the brain and supports the lungs; all good things to bring about in the practice of yoga and almost anything else.

This can also be done with the fresh herb any time you are gardening, or better yet, have

a rosemary plant where you frequently walk and break off a small branch to rub between your hands and inhale. Rosemary acts strongly on the lungs, which is one of the “blood organs.”

Rosemary is also specific for cardiac edema and congestive heart failure. Juliette de Bairacle Levy used rosemary in this manner and recommended it brewed as a tea with honey. Rosemary tea is actually very nice, especially with lemon thyme added. Here in Florida, rosemary is winter hardy, and also where we lived in middle Georgia, but in more northern climes it needs to be brought inside or planted in a very protected place.

We are all familiar with Shakespeare’s quote, “There’s rosemary, that’s for remembrance.” But do we remember with our heart or our brain? Either way, rosemary’s warming influence on the circulatory system will help by increasing oxygenation throughout the body.

As glucose levels in the blood are brought down, all the functions of the body, most especially those of the heart and brain, which require large quantities of blood sugar, are strengthened. So true to Shakespearean herbal tradition, rosemary can be a great help to

us in the memory department. Also rosemary contains several compounds that prevent the breakdown of acetylcholine, an important neurotransmitter in the brain, one that is needed for memory and healthy brain function.

Rosemary has a strong digestive ability bringing warmth in cold diseases and especially with cold in the stomach. Compare our stomach to a compost pile. If the ingredients are dry and cold, the rotting and ripening of the compost ingredients will not progress. It’s the same with our stomach, which is in charge of rotting and ripening our food—not a very picturesque way of putting it, but accurate. We should not consume cold food or drink, or too much drying food. Now, I, like so many southerners, was born with a glass of ice tea in my hand. So that habit has been very difficult to break. But since I know that putting cold food and drink in the stomach stops or drastically slows down digestion, so that the contents of the stomach putrify rather than digest, has been the impetus to change my dastardly habits. Remember rosemary warms the stomach.

Rosemary also increases the flow of bile through the liver and has an antiseptic quality. Besides, it is said

to have been Napoleon’s favorite herb, and I have found Napoleon to be an interesting historical character. Perhaps if he had eaten more of his favorite herb he would not have suffered an untimely death (stomach cancer), if in fact he did.

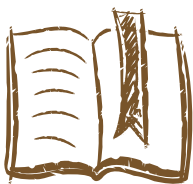
All the years I studied Chinese herbs, I never remember any of them being tasty, so I guess that lets rosemary out of the Chinese Pharmacopeia. Ayurveda, on the other hand, embraces the herb enthusiastically.

YARROW

Yarrow is one of the easiest to grow and one of the most useful. One cup of yarrow tea on a regular basis is said to be a fine thing to do. I know it sounds awful, but it is actually not bad. It is good for digestion and soothes the muscles of the stomach. It’s easy to grow from seed and naturalizes, so there’s always some to cut.

The oil is one of my favorites. If you get an unfavorable reaction when using any oil, just cover the area with diluted yarrow oil. It will soothe and reduce the adverse response. Many skin conditions respond to yarrow oil or the fresh herb tea. One of our horses came to us with the skin problem known

Recipes



Tulsi Tea

I make this tea all summer.

- 1 teaspoon basil
- ½ teaspoon green jasmine tea
- ½ teaspoon rose petals
- Steep for 5 minutes.

Blackberry Basil Vinaigrette

The first time I made this I didn’t read all the way to the end of the recipe, so I never added the oil. It’s good with and without the oil.

- 5 oz. blackberry preserves (half a jar)
- ¼ cup red wine vinegar
- 6 fresh basil leaves
- 1 garlic clove, sliced
- ½ teaspoon salt
- ½ teaspoon seasoned pepper

(Seasoned pepper is not a product I’m familiar with, so I used plain pepper.)

Ed. note: Seasoned pepper is a combination of peppers [black, sweet red bell] and select spices. Lawry’s and McCormick are two popular national brands. There are also various homemade versions online.

Add all of the above to a blender. Pulse 2-3 times until blended. With the blender running, add ¾ cup vegetable oil (I used ½ coconut and ½ olive oil) in a slow steady stream, processing until smooth.

Makes 1 cup.

Yarrow tea is said to be good for digestion.



On an emotional level, yarrow is known to combat negative feelings and distance the receiver of the oil from negative and draining influences. If you are competing in any sport with horses, dogs or just yourself, yarrow oil can certainly be a valuable addition to your first aid box.

One final herb: Cilantro. I've heard that you either love it or hate it. I fall into the latter group. If it's in a recipe I can't taste anything else, and the taste is, well, it's distasteful. However, due to its major health giving aspect, that of purging heavy metals from the body, I grow the herb in my garden. And that is where I consume it, in mouthfuls. That way it can do its job and not ruin the taste of any other foods. We grow Slow Bolt Cilantro, which will last a bit longer as our Florida spring rapidly turns into summer. I guess this herb stands alone.

Use the oils, the fresh or dried herbs, make tinctures, creams or even furniture polish with them. Use them with caution and knowledge, and a large dose of common sense, but use them. ☺

This article is not meant to replace proper medical care. That's where the common sense comes in. Peace and Many Blessings, Judith Andrews

as sweet itch. He would break out in giant hives, which when left untreated, graduated to weeping skin lesions and severe itching. Yarrow oil clears the hives up every time from one chore time to the next.

Use yarrow on the jaw line after dental work (one drop to 5 ml). The effects can be almost instant. It's worth having around for this reason alone, especially after the equine dentist's annual visit.

My Husband's World Famous Rosemary/Garlic Oven Roasted Potatoes

(The title is longer than the recipe)

Cut up some red potatoes.

Oil the pan.

Mince some garlic cloves and rosemary leaves.

Mix the above together. Add to oiled pan.

Squeeze fresh lemon juice over all, sprinkle with salt and pepper, roast at 350°F until done.

Stir several times during roasting.

Editor's note: All oils have a "flash point"—the point at which they start to smoke, so some oils are better for frying while others are better used cold, as in salad dressing for example. Check out the differences at: <http://jonbarron.org/diet-and-nutrition/healthiest-cooking-oil-chart-smoke-points#.VJX5W0AIOEA>. For those curious and without internet, Extra virgin olive oil has a smoke point of 320°F, while refined peanut oil, 450°F.

Now About That Culinary Incompetence ...

Several weeks ago, I decided to use some of the beeswax I had on hand to make furniture polish. One item I use frequently to clean furniture is vinegar, so it followed to include this ingredient in the recipe. In a double boiler, I slowly melted the beeswax.

Then I began to add the vinegar. It's fascinating what the vinegar does when it hits the wax—cold vinegar rudely poured into warm wax—or stupidly poured into warm wax. Since it didn't want to mix using a whisk, I thought to use a hand-held electric mixer. Brilliant! (I thought.) The contents flew over most of the kitchen. I even scraped splatters off the breakfast room window. The double boiler happened to be one of my husband's favorite pots. Cleaning it was incredibly difficult, plus all the spoons, forks, whisk and anything else within 20 feet of the experiment. As I was washing all that wax down the drain with boiling water, I thought, "Well, we will probably have to call the plumber." That's all right. We have a very nice plumber. We have a very nice electrician, too, but I don't think it got into the electric system.

I have thought since that I should have used some kind of oil instead of the vinegar, but I haven't thought just what kind of oil to use. I'd be grateful for any suggestions. Not that I'm planning to do this again, but if there is a next time it will be done outside in a disposable pot bought at a yard sale.

The news of my lack of culinary skills will now spread among all, I hope, COUNTRYSIDE readers. I've spent years building my reputation. This should cement it.

— Judith Andrews



Raw Milk

It's Not as Risky as You'd Think

BY JOHN
HIBMA

I GREW UP DRINKING RAW MILK from cows, and I've lived to tell about it. How many of you have had the opportunity to drink raw milk? Unless you've been raised on a dairy farm, worked on a dairy farm, been a neighbor to a dairy farm, or had a few animals in the backyard, the chances of actually drinking a glass of cold, raw milk, only a couple hours old, are pretty slim. You won't find raw milk in any supermarket dairy case—only in small niche-style food stores or purchased directly from the dairy farmer who produces it. Raw milk sales and consumption are still illegal in 11 U.S. states.

Federal quality standards today require that all dairy products must be refrigerated immediately after production. This has all but eliminated the possibility of raw milk making people sick. Nevertheless, the debate over the safety of raw milk continues.



Just because milk is raw doesn't mean it's dangerous. Cleanliness during all stages of collecting and storing milk is vital.

Pasteurization of milk is still recommended by the Center for Disease Control (CDC) as reducing the incidence of foodborne illnesses from such bacterial species as coliform, salmonella that can show up in raw milk that has been mishandled. However, raw milk enthusiasts tout the health benefits of milk that hasn't been "cooked," citing that many beneficial enzymes and bio-active proteins are destroyed by pasteurization. And while pasteurization and homogenization together do indeed alter the unique taste of milk, the CDC emphasizes that there is no scientific evidence supporting a decrease in milk's nutritional value when pasteurized and homogenized.

Homogenizing milk is a separate process in which the fat molecules (the cream) are mechanically and under pressure broken down into smaller particles, which then keeps the cream in suspension instead of it rising to the top of the milk. Homogenization is usually done in conjunction with pasteurization at a processing plant. Milk that has been pasteurized, but not homogenized, will still have the cream rising to the top of the bottle or carton.

Melynda Naples has been producing and selling raw milk at her Deerfield Farm in Durham, Connecticut, since 2005. Under Connecticut laws, based on her bottling set-up at the farm, Naples is permitted to sell about 200 gallons of raw milk per week, which represents about half of her total production coming from about 20 Jerseys. She also produces pasteurized cheese and yogurt. There are more than a dozen other dairy producers also

marketing raw milk in Connecticut.

Right out of college, Naples originally intended to produce and ship milk to a conventional processor, but it didn't take long for neighbors to begin asking if they could purchase raw milk. Naples did her research, talking to others who were bottling and marketing raw milk in the state. She received her raw milk license and soon began offering it in gallons and half-gallons under her Deerfield Farm label. Her market and customers literally came knocking at her door.

Interest in her raw milk has been so keen that several years ago Naples also began offering a Community Supported Agriculture (CSA) program in which customers pay up-front for a "package" of selected dairy products that they receive weekly during the spring and summer months. There's a waiting list for people to buy into the program. Naples does not produce "organic labeled" milk, but she does operate her dairy farm in as sustainable and eco-friendly manner as possible, as she's surrounded on all sides by suburbia.

Even though the milk coming from cows, goats and sheep is intended to nurture newborn calves, kids and lambs, somewhere at the dawn of civilization, mankind learned that animal milk is also a nutritious food for humans. Dairy products have long been included as one of the basic food groups in a well-rounded diet. Because dairy products are packed with protein and minerals, they accomplish something that many other foods do not—they are considered both a health food as well as a beverage and snack food.

The characteristics of milk that make it so nutritious are also what makes it so potentially dangerous. The fats and sugars, proteins and minerals make it a perfect medium for bacterial growth. Left out in the warm, open air or at room temperature, bacteria quickly begin to grow in a bucket or glass of milk. Fats

What is Raw Milk?



The term "raw milk" as it applies to dairy foods simply refers to milk that has not been pasteurized. The famed French scientist, Louis Pasteur, discovered that by boiling milk for a short period of time, a significant portion of the potentially harmful bacteria would be killed off. In the days prior to refrigeration and the understanding of germ pathology, dairy products made many people sick.

— John Hibma

will turn rancid in a matter of hours making milk undrinkable. The plain truth of the matter is that all dairy products are perishable and, when not refrigerated, will quickly spoil. Even pasteurized milk, when left out on the kitchen counter or in the trunk of a hot car, will become undrinkable.

Local and federal health agencies routinely monitor raw milk and dairy farm facilities for impurities in the milk and unsanitary conditions on the dairy farm. The "raw count" measures the dirt and fecal contamination levels that may be present in freshly produced milk. This test, which includes coliforms, streptococcus, staphylococcus and salmonella, is an indication of the sanitary conditions in the milking barn environment and the cleanliness of the cow's udder.

A second test measures the amount of white blood cells (also called somatic cells or leukocytes) in the milk. This test indicates the presence of mastitis, which is an infection in the mammary gland. Elevated somatic cell levels will shorten the shelf life of the milk—they do not make people sick. If either of these tests exceed allowable levels, the producer will not be allowed to ship or sell milk produced at the dairy and they may lose his/her milk-producing license.

It must be emphasized that listeriosis, a very serious and potentially fatal foodborne illness, is often associated with dairy products and raw milk, in particular. The listeria bacteria does not come from unclean milk, but rather from the improper cleaning procedures in milk processing and bottling equipment. Listeriosis comes from unclean bottling and storage equipment and can make people sick even after milk has been properly pasteurized.

All commercial dairy farms that produce dairy products for public consumption are required to comply with strict quality standards regardless of whether their milk is shipped to a processing facility to be pasteurized or if the producer is selling raw milk at the farm. Dairy farmers marketing raw milk are held to an even higher standard of cow health and sanitation than conventional dairy farms. The number one thing to look for when considering purchasing raw milk or dairy products directly from a dairy farmer is to check out the dairy farm and see how clean it is. Ask to see the recent bacteria and SCC counts. Producers like Melynda Naples stake their reputation on the safety of the milk they produce—their livelihoods depend on it.

Raw milk produced for retail sales is almost exclusively produced by local dairy farmers with small herds that can be kept clean and managed efficiently. A growing segment of the population is choosing to support local family farms, which provide economic stability to small communities. In regions such as New England with high population densities, small farms that produce superior products are eagerly welcomed. The quality standards for all milk produced in the U.S. today are so high, including those dairy farms producing and marketing raw milk, that there should be very little fear of drinking raw milk or consuming manufactured dairy products such as cheese or yogurt made with raw milk. ©

Frost-Free and Flowing

Ensuring a Year-Round Water Supply is Essential

BY
JOSEPH D.
CONWILL
MAINE

EVERYONE WANTS TO HEAR ABOUT homesteading experiences, as the Jan/Feb 2015 issue says, and I sure enjoy reading them all, even if they don't apply to me. So I thought readers might like to hear about our latest adventures in water supply.

The house dates from 1887 and the well was probably dug at the same time. It's hand dug, 25-feet deep, lined with stone. It is fed by underground springs, stays around 42°F the year round, and never goes dry. Grandpa put electricity in the house in 1967, along with an electric pump just behind the kitchen, but he also kept the old pitcher pump at the well. It requires no maintenance other than to replace the leathers occasionally, which are still available locally, but we have several sets of extras, just in case. In winter, you



An old pitcher pump pours water.

can still get water, but you have to prime the pump with hot water. When you're done, you lift the pump handle all the way up, which breaks the prime and sends the water back down in the well so the pump won't freeze. This is highly important, since the temperature reaches -30°F here in Maine.

When Grandpa put in the electricity, he also had an apartment in town (five miles away) and he did not stay in the farmhouse over the winter. Therefore he did not put the water supply line underground. There are some good reasons not to do so. Digging too near the well with machinery might cause the stone lining to cave in. Also, the well is covered by an attractive hip-roofed well house, 10-feet by 10-feet, but this prevents getting near for digging, unless you move the well house somehow.

For many years I used only the pitcher pump year round, ignoring the electric pump. But about 10 years ago I had a serious foot injury and began to think hard about how to get water. Five years ago I got married, and Nancy does appreciate running water. But how to get it year round? The frost line is at least five feet underground here, and systems that are not below frost line can be used only from about May 15 to October 15.

After considering several possibilities, we decided to install an electric in-line heater cable. It's possible to put a heat tape outside the pipe instead, but this is far less energy efficient. We found only one company that makes these, and the brand is EasyHeat. The heater cable had to be below frost line in the well itself, and it then had to travel over land, and through the tool shed to the pump room. This required a 70-foot cable costing about \$50. These specialty

cables are available by order only through official stocking dealers, but we wouldn't have ordered over the internet even if it had been available that way and even if it had been much cheaper. We prefer talking with local people; the dealer offered some excellent and cost-saving advice on installation.

First we had to replace the water line itself. The old one was the usual one-inch, but the cable requires 1-1/2 inch. Before burying it, we threaded the heater cable through. First, we fished a string through the pipe by sucking it through with a vacuum cleaner (great advice from the hardware man). Gently pulling on this, we got the cable through as far as the wellhead, but then how to get it into the pipe that goes down in? You're supposed to pull the pipe out of the well, but the old well house on top prevents this. We had to push it down somehow, and Nancy suggested using those long poles for the roof snow rake, which came in so handy in many other jobs. This worked, but it was tricky; the bottom of the cable has a clip on it to prevent it from being pushed back up by the water flow, but if we had lost our grip on this as we were pushing the cable down it, we wouldn't have been able to get it back out again.

We put the new line about eight inches underground, and surrounded it with gray pipe insulation. On the advice of the hardware man, we used insulation for 1-1/2-inch pipes, because we were using 160-psi plastic line, whereas the insulation is mainly designed for the thinner-walled 100-psi kind. We also placed a slab of two-inch blue foam insulation, seven-inches wide, on top of the insulated line before replacing the soil. To minimize disturbance in the

"We prefer talking with local people; the dealer offered some excellent and cost-saving advice on installation."

landscape, we first cut out square chunks of sod and then replaced them on top when the job was done.

Locating the thermostat probe required some thought. You're supposed to put it at the coldest part of the line, but how do you know? And it's only 10-feet long itself! We put it at the point where the line is just about to exit the unheated tool shed, and go underground. There's another above ground portion in the well house, and that we boxed in with more two-inch blue foam insulation. The part below the well cover has only the round gray insulation, but this area receives some natural heat by the fact that the well water below never freezes, and we're hoping that it won't get colder than the spot where we put the thermostat.

I'm writing this in mid-December and we've had temperatures somewhat below zero, but it hasn't yet been tested in extreme cold. It uses about \$15 of electricity per month so far. If something does eventually freeze, we'll go back to using the pitcher pump until we can make repairs in the summer.

So this is our latest adventure in the mountains of western Maine! ☺

Note: If you want to order an EasyHeat, call 800-621-1506.



One type of 160 psi plastic line.

A Primer About Solar Electric

It Can Get a Little Complicated, so Here Are Some Technical Points to Help You Get Started

BY
DAN FINK
COLORADO

BACK WHEN I WAS A YOUNG TEENAGER, I saw something that changed my life forever — a solar electric panel. My parents had just bought remote, mountain property here in Colorado. Our family has always loved the outdoors, with fishing, hiking, backpacking and camping our favorite activities, and of course it's essential to have somewhere to escape the big city as often as possible. My folks were planning to build a rustic cabin, with kerosene lamps for light, a woodstove for heat, a gasoline generator for power tools and where "running water" meant my dad had to pick up the pace a bit carrying buckets up from the spring. The nearest power lines were (and still are) 11 miles away.

After our camper was parked on the property and cabin plans were forming, we started going out to meet and greet our neighbors (always a good plan in the country). At dinner at our neighbor's house, we were all stunned that they had electric lights and a small stereo for music and radio! All powered by a few funny-looking rectangular things on the roof with solar cells in them and a couple marine batteries. No smelly, dim and dangerous kerosene lamps, and no noisy, smelly and unreliable generator banging away outside.

It wasn't cheap — at the time, a single small 22-Watt solar panel cost more than \$700 — but well worth it. Our cabin was built as planned, though we had to use a generator for the power tools. But inside, I could even do my homework and read books under real electric light instead of squinting by the dim kerosene version. Clean, quiet, natural and reliable power.

That made a huge impression on me and now, 35 years later, my own off-grid home and office on the property next door to theirs has almost all the conveniences of town: microwave, dishwasher, rice cooker, satellite TV, internet and phone and even a big electric refrigerator. You'd never know that it's entirely off grid except for the long drive to get here, all the birds and other wildlife roaming the property and the blessed, peaceful silence. I ended up making renewable energy my career, even though it looked slightly crazy at the time to my friends and family. And I've never looked back—it turns out that was one of the best decisions I've ever made. And now

almost nobody thinks I'm crazy.

Solar electric (PV) power has become very inexpensive over the last few years thanks to new technology and the economy of scale—PV panels are now a mass-production item, and are about 30 times cheaper per Watt than what my folks paid for that single panel back in the day. But it also pays to do your homework before pulling out your wallet, as it's all too easy to order DIY equipment on the internet only to find that the all the various bits you bought don't play nice with each other.

SOLAR ELECTRIC TERMINOLOGY

First, let's get on the same page with terminology. "Solar panel" is a confusing generic term that can also refer to solar water or air heating technologies, so Photovoltaic (or PV) is the specific term for something you put in the sun to generate electricity. PV cells are the individual round or square pieces that are wired together and sealed under glass to form a PV module. A group of PV modules is called an array, and within the array there may be multiple groups of PV modules called strings.

There are three basic types of PV modules: monocrystalline, polycrystalline and thin film. Each has advantages and disadvantages, but the important thing to remember is that you can safely make your PV purchase decisions based mostly on dollars per watt, and then by efficiency—some PV technologies take up more space per watt generated than others. If you have



PHOTO 1



PHOTO 4

PHOTOS CLOCKWISE: An original ARCO 22-watt PV module, just like the one my folks bought in 1981 to electrify their off-grid cabin. AUTHOR PHOTO; A thin-film carpark shelter. PHOTO COURTESY CALFIRE; A polycrystalline PV module. PHOTO COURTESY CANADIAN SOLAR; CPV dual axis tracker. PHOTO COURTESY VINAYKUMAR8687 WIKIMEDIA COMMONS



PHOTO 2



PHOTO 3

limited rooftop area for an array, efficiency becomes more important, but if you have plenty of space for a ground-mounted array, you can shop almost entirely by dollars-per-watt.

Thin film has taken a bad rap recently for a variety of reasons, but still has a lot of potential. This is a coating that can be sprayed or rolled onto a surface, usually glass, but plastic, cloth and other flexible bases are possible. The main problem with thin film is that it's not as efficient—a thin film array takes up about twice the space of poly or mono to produce the same Wattage. The big advantage is that it doesn't have to be flat and brittle and covered with glass; curved surfaces are possible. Places you'll likely see thin film modules are the decks of boats, and solar shade car parks.

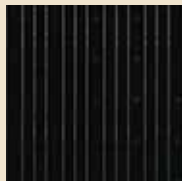
Bad publicity didn't help thin film technology either. Just drop the words "Solyndra" and "Abound Solar" and you'll likely still hear all kinds of stories about the waste of government loans and how our efforts to help fund start-up

companies were futile. The rest of the story is that the whole idea behind these companies was to break the "\$1 per watt" barrier, and they did. Unfortunately for them, the Chinese broke that barrier with standard monocrystalline and polycrystalline modules while American thin film production was still ramping up. And as with any new technology, reliability growing pains were also an issue.

Another consideration for you in selecting PV modules might be the country of manufacture, and these days that can be a bit confusing. The PV cells themselves might be made overseas, then assembled into modules in the United States. You might also want to look at the long-term stability of the manufacturer. Most PV modules are warrantied for 25 years, but if the company is no longer around, that warranty isn't worth much. Fortunately, I've never run into any consistently "bad" brands of PV module, other than imported eBay specials. Any module that's UL-listed should serve you just fine for many years; without that listing you are taking a big risk of failure and fire, and in most jurisdictions it's illegal to install non-UL listed solar equipment for your home in the first place.

All this said, when shopping by dollars per watt, at the end of the day most likely you will end up with mono- or polycrystalline modules. Pay attention to shipping options, too—standard 250- to 300-watt PV modules are too large for UPS, and have to be shipped by truck on a pallet. Residential delivery with a lift gate more than doubles shipping costs, so see if your distributor can sent them to a nearby freight depot for you to pick up. They'll load them in your pickup with a forklift, and you can break the pallet and open the individual boxes at your convenience, at your home.

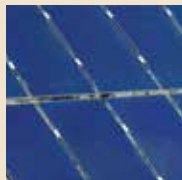
Types of PV Modules



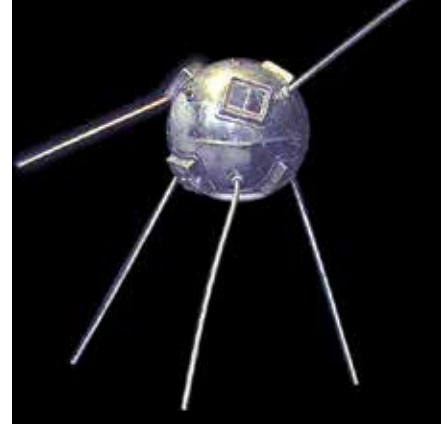
Monocrystalline PV modules were the first on the market and are still the most efficient—more Watts per square foot.



Polycrystalline modules are a close second, you trade a bit of efficiency for slightly lower cost per Watt.



Thin film modules are relatively new and far less efficient, but have their own advantages in specific applications.

Vanguard 1 satellite
PHOTO COURTESY NASA

PV MODULE RATINGS

Back in the day, PV modules came in one flavor: 12 volts. Connect a 12-volt module to a 12-volt battery and connect a 12-volt light to the battery, and you had a simple power system. If your battery bank was 24 volts, you put two modules in series and two batteries in series, four and four for 48 volts. Your solar controller (which prevents overcharging the batteries) had a switch setting inside so you could tell it what voltage to expect. The disadvantage of PV arrays wired at low voltage was the high cost of thick copper wire to the battery bank, and large or multiple charge controllers to handle the high amperage.

Those “12 volt nominal” modules actually made about 22 volts with nothing connected to them—so-called “open circuit voltage,” or Voc, and a normal operating voltage (Vmp) of about 18 volts. Advances in modern charge controller technology have completely changed how most PV arrays are designed. And instead of referring to modules by nominal voltage, you’ll see “60-cell” and “72-cell” modules advertised instead. The 60-cell versions have a Voc of around 38 volts, and Vmp of around 31 volts; the 72-cell versions run at a Voc of around 47 volts and Vmp of around 37 volts.

These numbers are important to you because modern charge

controllers use a technology called Maximum Power Point Tracking (MPPT) that watches changing sunlight conditions such as cloud cover and sun angle by looking at Voc, and quickly forces the array to operate at the best possible Vmp for the conditions. Even better, MPPT allows for high-voltage PV arrays with multiple modules connected in series—no more running expensive and hard-to-bend copper wire as big around as your pinky from the array to the system control center and battery bank. With a maximum Voc of 150 volts the norm, and Voc of 200 volts, 250 volts, and even 600 or 1,000 volts available, the whole PV array can run on much thinner wire. The extra cost of these high-tech controllers is usually completely offset by the reduction in copper wire cost. The downside is that if you have to mix and match PV modules, the MPPT computer will likely choose the worst available solution. In those cases, I usually recommend a plain old-school PV charge controller.

There’s another catch with MPPT, though. If your PV array ever exceeds the maximum Voc of the charge controller, it will be damaged beyond repair. And there are environmental factors that can bring module Voc to over the official rating—for example extremely cold weather, snow cover on the surrounding ground that reflects extra light, and

the “cloud edge effect,” all of which can raise voltage enough to destroy a controller. Fortunately, most charge controller manufacturers provide free online “string sizing” tools to help you arrange your array. Just plug in the brand and model number of your modules plus your geographical location into the website and it will tell how to arrange your PV module strings to prevent controller damage, including all the possible environmental effects.

TRACKING AND RACKING

Don’t confuse Maximum Power Point Tracking with actual “trackers” (photo 6) that physically move the solar array to face the sun all day. The former is a purely electronic process. In most cases I don’t recommend physical trackers—they are expensive and require very sturdy pole mounts set deep in the ground in concrete, a very large extra expense. Trackers also add moving parts, which require maintenance and can fail, to an elegant system with no moving parts. Unless you have a specific application like farm

The History of Solar Electric

Electricity from the sun actually dates back more than 175 years. Here’s a quick history.

1839 – 19-year-old physicist Alexandre Edmond Becquerel discovers that by shining a light on two different metals in contact with each other, electricity could be produced.

1888 – Edward Weston receives the first U.S. Patent for a “solar cell.”

1905 – Albert Einstein publishes a

paper on the “photo-electric effect,” which sets the stage for his Theory of Relativity—light waves and particles and how they relate. He wins the Nobel Prize for this in 1922.

1954 – Bell Labs exhibits a high-power PV cell made from silicon.

1958 – Geophysical survey satellite Vanguard 1, about the size of a grapefruit, is successfully launched by the USA. The batteries running its main transmitter expired after only 16 days, while the PV-powered second transmitter kept working for over six years. Data from the satellite showed that Earth is not a perfect sphere,

but instead an oblate spheroid. The satellite is still in orbit, and is tracked optically.

1970s – The U.S. Coast Guard powered lighted navigational buoys with non-rechargeable batteries that had to be replaced regularly. The ships and crews required for this task cost far more each year than the buoys themselves. USCG officer Lloyd Lomer thought PV modules to be a far more cost effective power source, but his commanders didn’t agree. He bravely went over their heads to the U.S. Department of Energy, and a PV-powered test buoy was deployed in the worst possible solar location,

“I ended up making renewable energy my career, even though it looked slightly crazy at the time to my friends and family.”

water pumping for livestock or if you are located at a high latitude, adding a few extra PV modules to your array is usually more cost effective than physical trackers.

The exception is seasonal trackers that you move only four times a year to match the sun's angle a bit better. These can be highly effective, and also more cost-effective for your energy generated.

Advances in racking—the rails and feet that hold your PV array in place on the roof or on the ground—have also actually played a big part in lowering the overall price of installation. No more designing, cutting and precisely drilling holes in aluminum or steel; new racking systems use precisely extruded aluminum rails that let bolt heads slide inside, and clips instead of through bolts to lock the PV modules down. In fact, you'll void the warranty on many modules by drilling new holes in the frames; you must use the pre-drilled holes or sliding clips from the racking system, which can be fastened almost anywhere on the module frame. Electrical grounding solutions are included with all these new racking solutions.

Even PV module wiring connectors have changed significantly in the last few years. Gone are the days of crimp terminals, wiring blocks and conduit between modules—now it's all waterproof click-lock (MC-4) connectors on wires that are permanently connected to the modules. These have the advantage that it's impossible to accidentally connect them with wrong polarity (plus or minus), but the downside is more expensive connectors and wiring harnesses, and a challenge trying to keep the wires bundled out of harm's way.

GOING SOLAR IS CHEAPER THAN EVER

At the time this issue of COUNTRY-SIDE goes to press, retail prices for PV modules are about \$1 to \$1.50 per watt—a far cry and big relief from the \$32 per watt my folks paid back in the early 1980s to electrify their off-grid cabin. Prices probably won't get much lower anytime soon, but they won't get much higher either. PV remains the most cost-effective way to generate your own electricity. Do your homework before pulling out your wallet, but there's little chance you'll get wrong with PV. ☺

off of Ketchikan, Alaska. It worked. In 1986 President Ronald Reagan gave Lomer a letter of commendation for saving millions of taxpayer dollars.

1974 – Railways began to see the potential of PV electricity to power warning lights and communications in remote areas; these systems proved essential to keeping trains running during grid power outages.

1978 – Telecom Australia was mandated in 1974 to provide telecommunications services for all citizens, no matter how remote. Managers saw the potential of

PV, performed extensive reliability testing, and in 1978 started deploying PV-powered phone repeaters. They worked.

1980s – PV power for the electrification of remote areas of the world became financially viable due to increased PV module production. Water pumping was of particular concern. These systems were successful.

1980s to the present – Each year, the cost of PV modules has dropped because of increased production worldwide, and efficiency (watts per square foot) has increased each year too.

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A Lesson in Outdoor Survival

BY
MIKE
DISHNOW
WISCONSIN

A SIMPLE OUTDOOR EXCURSION THAT will quickly bring you in touch with the basic needs universal to humanity uses three tenants: food, water and shelter.

PROVISIONS ALLOWED

Provisions allowed on this overnight trip include the clothes on your body plus these supplies: matches or other fire spark such as a magnesium stick plus zip lock bag; tea bags or small packets instant coffee plus zip lock bag; one large contractor size garbage bag; one empty metal coffee can with improvised wire handle, plus a plastic or metal drinking cup; and one folding pocket knife such as a Buck Hunting folding knife.

THE TEST

Find a forested acreage near a body of water— either lake or river will do. Secondary growth and brush should be present, as well as larger trees. A fully mature pine forest is not suitable. A mixture of tree varieties and sizes is best.

It will be necessary to harvest some branches and/ or small growth so consider this when choosing a location. Permission from the land owner is essential.

You must draw your drinking water from the lake or river. It is absolutely necessary to boil this water until it is safe to drink. You may flavor it with tea or coffee.

Your overnight shelter will be constructed from materials at hand. You will be building a debris hut or as I like to refer to it as, a squirrel nest. It is best to have a team hut with multiple occupants to take advantage of shared body heat. You may use the garbage bag as insulation or ground cloth to stay dry.

Enter the forest, find a suitable location and build your debris huts for the night. Spend the night in the huts.

The next morning organize a long hike and finish it before ending your outing. This should be arduous enough to tire you out.

WHAT YOU'LL LEARN

Lessons experienced will be simple, but very profound:

- You will become thirsty enough to drink the boiled water without reticence. It will not matter to you if dirt or debris is in the water.
- Sleeping will be difficult and you will wish you were warmer. You will wish you had been wiser in your choice of clothes. Your shyness will evaporate quickly as you become colder in the night.
- You will become hungry and wish you had food. The hike on the following day will exacerbate your hunger and you will tire more quickly.
- Without fuel (food) your energy level decreases quickly. You will find that concern over cleanliness, your morning shower, and your favorite morning music or show will all be absent. Your mind will be focused on food, water and warmth. Your basic survival needs for food, water and shelter will come, and remain, in the forefront quickly.

It is an interesting experience. You will never fully appreciate this by reading a survival book or passing a paper and pencil test. Experiencing hunger, thirst and being cold is the ultimate experiential lesson.

I experienced this first in the U.S. Marine Corps and later in a four-season survival course in Alaska. These lessons, learned in my relative youth, are still vivid several decades later. ©



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Before You Start Your Adventure

Know the Importance of Basic Wilderness Survival Gear



Lighting, water, knives, direction-finding tools and water-collecting tools are good to bring along on any adventure.

BY
JIM COBB
WISCONSIN

THIS IS THE TIME OF YEAR WHEN FAMILIES begin planning summer vacations. Quite often, those trips involve spending some quality time out in the forests and such, enjoying Mother Nature in all her splendor. Unfortunately, this is also the time of year when we begin hearing stories about lost hikers and campers, folks who took a wrong turn and couldn't find their way back to the trail. Usually, these lost souls are rescued within a day or two. Sometimes, though, it becomes not a rescue but a body retrieval.

The reality is this: any time you are heading out into the forest, even if only for a half-mile hike, you should carry with you a few survival items with you, just in case.

SIGNALING TOOLS

While most folks today have a cell phone strapped to their hip or in their pocket, there are many areas where signals don't reach. Shouting for help will likely only give you a sore throat. The human voice just doesn't carry all that far in the woods. It can also be difficult to pinpoint if it is heard. A far better plan is to keep a loud whistle on a lanyard around your neck. It is best if the whistle has no moving parts, such as a pea rolling around inside. In cold climates, your breath will con-

dense and freeze inside the whistle, possibly causing some problems with sound. The whistle should also be plastic rather than metal. When the temperatures plummet in winter, your lips could freeze to a metal whistle.

Patterns of three are universally recognized as signals for help. For example, three short blasts on the whistle or three rifle shots.

A glow stick, sometimes called a snap light, is a great signaling tool at night. Tie the light to a length of cord, such as a shoelace. Activate the light, then spin it in a circle in front of you. The glowing circle can be seen for miles, provided, of course, you are at the top of a hill or otherwise in a clear area.

FIRE-MAKING SUPPLIES

Having the tools necessary for building a fire is critical. Fire will keep you warm, dry you out if you've gotten wet, and light up the night. There is a strong psychological element at work, too. Sitting in front of a fire will help you to relax and feel better about your situation.

Personally, I like to have at least two different ignition tools with me when I'm out hiking. Three would be better but two should suffice. Good choices include strike anywhere matches inside a waterproof container, butane lighters, and ferrocium rods with strikers. I tend to favor butane lighters and ferro rods. Both are capable of lighting hundreds, if not thousands, of fires.

Ready-to-light tinder is also recommended. Yes, there are many natural sources of tinder, such as seed pods and plant fluff of all kinds, but you cannot always count on finding it when it is most needed. What I suggest is keeping a small container of cotton balls soaked in petroleum jelly in your pocket. If you can find one these days, an old 35mm film canister works great.

Building a fire is a skill that should be practiced regularly. It is not something that comes easily to many people. We do a lot of campfires in our backyard and I

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like to have my kids each practice using ferro rods and such. They get a kick out of it and they're learning valuable skills at the same time.

KNIFE

A knife can be your most valuable survival tool. It need not be a giant "Rambo" knife, complete with built-in compass and hollow handle. In fact, I'd steer you away from any of that sort of nonsense. You have two basic choices, fixed blade or folder. I prefer fixed blades as they tend to be far stronger than most folding knives and the last thing I want in a survival situation is to have my knife fail.

For most camp chores as well as survival tasks, a blade of four inches or so should suffice. You're not using it as a machete, you're just making feather sticks, whittling, possibly cleaning small game and such. For my money, you can hardly go wrong with a GNS knife made by LT Wright Knives. Another, but more inexpensive, option is the Condor Bushlore.

However, you may not want to carry a fixed blade knife on your belt, whether because of legal restrictions or because of comfort. There are many high-quality folding knives on the market today. There are also a ton of cheap, knock-offs that will likely fall apart after the first day of any real world use. Look for recognizable brand names like Kershaw, Gerber, or Buck. Genuine Swiss Army knives are also good quality.

Knives should be kept as sharp as possible. A dull knife is a far greater danger to you than a sharp one. Learn how to sharpen your knife and always take the time to touch up the edge after you've been using it.

COMPASS

A compass might be all you need to self-rescue, provided you've done a bit of homework first. Take a look at maps of the area where you'll be hiking or camping. Get to know the lay of the land a bit, especially where roads and such border the area. For example, let's say you'll be staying in a county-owned campground with

The reality is this: Any time you are heading out into the forest, even if only for a half-mile hike, you should carry a few survival items with you, just in case.

hundreds of acres of wilderness. If you know that U.S. Highway BB is on the north end of the grounds, Highway 87 is on the west side, Silver Lake is to the south, and the Banff River is to the east, you shouldn't have much trouble finding help if you have a compass telling you which way to go. Of course, that's also a pretty simplistic example.

The idea is to have a reliable way of figuring out which way is north so you can better orient yourself and make a decision on which way to travel. If you spend enough time out in the wilderness, you'll soon just sort of know which way you're facing. But, even if you've reached that point, put a compass in your pocket to double check your intuition.

WATER

Always have a water bottle with you. It doesn't matter if you keep it on your belt, sling it over your shoulder, or carry it in your hand, just be sure to have a full bottle of water with you when you hit the trail. Dehydration can sneak up on you, especially when hiking in hot weather. Stay hydrated as best you can and take frequent breaks when the temperature spikes.

Several companies now offer water bottles that have a robust filter built right in. This is an excellent option as it gives you the ability to refill from natural sources, such as rivers and lakes, without having to worry about giardia and other nasty stuff that can make you very sick. Never drink directly from natural sources of water. Even absolutely crystal clear water can harbor bacteria and such. The last thing you need is to add stomach upset to your list of woes.

SHELTER

Hypothermia is a very real danger and it can set in during even relatively mild temperatures. An emergency blanket is small enough to fit into a pocket and can quite literally save your life. They are made of a thin plastic material that reflects heat. Originally developed by NASA in the 1960s, hence the name "space blanket," they quickly found use among hikers and campers.

To use an emergency blanket properly, it should be wrapped around the body, but loosely so as to allow for dead air space between the blanket and the body. Your body heat, trapped by the blanket, will warm that dead air, which in turn will keep you warm. These blankets can also be used to create shade if the problem is too much heat rather than not enough. SurvivalResources.com sells the Sportsman Hooded Blanket, which is an emergency blanket with a hood and hand pouches built right in for use as a poncho.

With the exception of the water bottle, everything else should easily fit into a pocket of your pants or jacket. We're not talking several pounds of gear, just a few ounces. But those mere ounces could mean the difference between a tragic news story and a cool story you can tell friends and family later.

One last thing: Any time you are headed into the wilderness, whether for a half hour hike or an overnight trip, be sure someone outside your party knows where you're going, when you're leaving, and when you should return. If you don't check in with them at the appointed time, they should alert the authorities. ©

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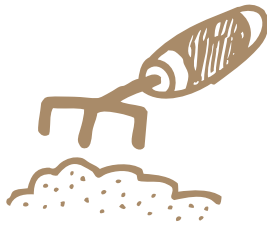
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A three-bin composting system
can be easily built with pallets.
PHOTO BY KENNY COOGAN





COMPOSTING

WITH SPRING CLEANING BEHIND US, IT IS TIME to start the odd jobs of summer. Composting is a fundamental aspect of homesteading and is a perfect project to start now. COUNTRYSIDE magazine is dedicated to serving readers who want to live a self-reliant lifestyle and composting can help us achieve that goal. Composting not only allows you to reduce your mainstream waste flow, but helps enrich your soil, which will enhance your livestock and food crops.

SOME ASSEMBLY REQUIRED

It probably won't matter if you purchase your composting unit at a big box store, or if you start with scrap pieces — you are still going to have to assemble something. Out of all the different units I have on my property, the one that works best was free and built out of pallets.

“The Cadillac of composting,” Steve Allgeier says, “is a three-bin system where you have three different layers.” Allgeier is a Home Horticulture Consultant and Master Gardener Coordinator for the University of Maryland Extension office.

Dr. Joseph Masabni, who has been gardening for about 20 years both as a hobbyist and professionally as an Extension Vegetable Specialist with Texas A&M AgriLife Extension Service, agrees. “Three bins are needed ideally, each 3- by 3-feet. One for storing new material, a second

for cooking the material, the third for storing the finished compost,” Masabni says.

The classic three-bin system can be easily built with pallets. Although there is no standard dimensions for pallets, a total of nine free pallets, which can be found at numerous feed and grocery stores, will allow you to create a large enough structure to delight even the most enthusiastic homesteaders. Most pallets that can be found at grocery stores are 40-inch squares. With your nine free pallets, you will want to build three cubes, side by side with open tops and bottoms. Having the bottom open will allow beneficial organisms easy access to start their decomposing jobs.

Since the cubes are next to each other, cubes that are adjacent to one another can share a pallet as a side. For the front of your compost bins, you can cut your

ninth pallet in thirds. Using one third for each of cube's front will allow easy access for turning the piles. Having a small lip on the front will also help keep the composting material in your allotted area.

“There are several different ways to compost,” Allgeier reminds me. At my home, I have a compost bin that consists of four uncut pallets. The top and bottom are open, like the suggested plan (pictured, page 52), but I have added a hinge to one of the sides. When I open the door, I can turn the pile to provide sufficient aeration. Although many times, the pile starts to fall out of the container when I do this. It then becomes difficult to push it back in the bin far enough to close the door. The other slight problem with this is that it can be challenging to separate the rich hummus from the newly added materials.



To get the most out of your composting, here's a quick guide: use 25-to-1 carbon-to-nitrogen ratios; keep 40 to 45 percent moisture; maintain sufficient depth of material to help generate microbial heat (140°F to 160°F); and turn the materials weekly for aeration.

PHOTOS BY KENNY COOGAN

"I tell people don't become enamored with the sexy small composting units," Allgeier says. "There are a lot of them sold out there, but the big disappointment is the amount of work you put in to it and what you get out of them."

Some of the better store-bought compost bin options include those that spin. Much like fruit trees, greenhouses and chicken coops, the largest one you can currently afford is the right choice for you. Compost bins that spin have the advantage of not needing to be aerated by using a pitch fork or shovel. Spinning the bin may even be fun to young children. Invite your neighbors to give it a spin. Soon, you will have quality compost and toned biceps.

The best location for a compost bin is an easily accessible one. If it is out of sight, out of mind, and out of use, then why bother? My property, which is a little larger than one acre, has a lot of shade. Due to the shade, I have my edible gardens scattered amongst the sunny patches of my property. At each garden, I have a compost bin. Although these bins are away from my kitchen and backdoor, once the compost is ready, it is easy to apply the "black gold." One of my gardens has a banana tree located about six feet away from the bin. It is the largest of all of my banana trees and grows with the most vigor. The banana tree most likely has a few roots under the compost bin. Convenience is key when it comes to compost placement—even my plants agree.

HOW IT WORKS

"The compost works in a simple process," Masabni says. "The microorganisms found in the soil, on the plants, or in nature break down the raw material to a mature compost to be used as a slow-release food source for plants," he adds. Compost improves a soil's physical structure making it easier to till. Masabni also notes

that compost can improve the chemical structures that buffer the potential harmful effects of salts. Another benefit is that "compost improves the water holding capacity in the soil," Masabni says.

"Composting is a way to accelerate a natural process of decomposition," Allgeier says. Mulch, yard and kitchen waste gets turned into hummus through composting, which can be turned into the soil. By working with the natural organisms and allowing sufficient air and water into the system, you can speed up the natural process of decomposition. You should turn it weekly during the warm season and monthly during the winter.

The ideal composting conditions will vary depending on where you live in the county. On average you will want to: use 25-to-1 carbon-to-nitrogen ratios; keep 40 to 45 percent moisture; maintain sufficient depth of material to help generate microbial heat (140°F to 160°F); and turn the materials weekly for aeration.

According to the Washington State University County Extension, variations in moisture content between 30 and 75 percent will have a small effect on the maximum temperature in the interior of the pile. The compost pile's moisture should feel like a wrung out

sponge. Studies show an association between the moisture content of the composting pile and the temperature distribution. Deeper piles cause higher temperatures and better temperature distribution.

When internal compost temperatures drop under 130°F, eggs and cysts of flies and parasites will start to increase. Temperatures over 160°F do not promote organisms that actively help with decomposition. Compost thermometers can be found at most extension offices or home improvement store.

WHAT NOT TO ADD

"Human and animal waste, pet litter but also common sense stuff like automotive waste, cleaning solvents and things with fats, are not good for your compost pile," Allgeier says. Fats can draw unwanted critters. "Not just animal fats, but also salad dressings, sour creams and peanut butter," he added.

Masabni also recommends not using items that may have residual pesticides or herbicides. "Do not add horse or cow manure unless you know the source of the hay," Masabni advises, as hay can contain herbicides containing aminopyralid or similar, toxic products. Other items to keep out of the compost pile include animal products such as dairy, egg yolk or whites, meat scraps, bones,

Here are a few ideas of what you can add to your pile.

CARBON (20-30 PARTS)

"Brown," dry materials

- Bedding
- Leaves
- Newspaper
- Sawdust
- Shredded cardboard
- Straw & spoiled hay

NITROGEN (1 PART)

"Green," wet materials

- Garden waste
- Lawn clippings
- Weeds
- Poultry manure
- Coffee grounds
- Kitchen scraps

"A finished compost should look like the potting mix you find in bags sold in garden centers for planting."

Different types of tumbler compost containers allow you to easily aerate the mix without making too big of a mess.
PHOTOS BY KENNY COOGAN



used oil or fats. Placing diseased plants in a compost bin is controversial, with many homeowners choosing to not take the risk.

Allgeier also has noticed that there is an old wives tale that says to add wood ash to compost bins. This actually retards the composting process, he warns. "Adding something that is not digestible," Allgeier says, "and that changes the pH of the pile, which will slow down the microbes," is no good.

YOU'VE GOT GOLD! (BLACK GOLD)

"The finished compost will be dark brown, crumbly, and have an earthy smell," Masabni says. He also says that it will no longer heat up when you turn it. "A finished compost should look like the potting mix you find in bags sold in garden centers for planting," he says.

"I generally look at temperature," Allgeier says in regards to when he knows it is ready. "What I mean by that is when you first start composting it is surprising how much heat it gives off." He says it is akin to driving past mulch piles in the winter and seeing them give off steam.







In addition to being used for the fruit and vegetable gardens, compost can "also be used in raised beds planted with ornamental flowers or rose bushes," Masabni says. Compost can also be used in pots or container boxes. "In brief, you can use compost anywhere you want to plant," Masabni says.

Composting promotes healthy soil life and organisms, increases water and nutrient retention. With no money, a little time and energy you can start composting today and you and your garden will reap the benefits tomorrow. ☺

Kenny Coogan, CPBT-KA has a B.S. in animal behavior. He is a pet columnist and a regular contributor to Backyard Poultry and garden magazines. He has authored a children's book titled "A Tenrec Named Trey (And other odd lettered animals that like to play)." Please search "Critter Companions by Kenny Coogan" on Facebook to learn more.

It's not too late to have a great looking summer garden. May and June are ideal times for starting gardens. By late May, most regions of the continental United States are frost-free or nearly so. This means that warm season vegetables that we all enjoy so much can be planted. Check with your local cooperative extension office for specific gardening tips in your area. You can locate the office nearest you by clicking on the map available at this link: www.csrees.usda.gov/Extension.

With so many growing zones in the U.S., it's hard to pick the best May and June crops to plant. Aside from the common tomato and pepper, here are some unique summertime Solanum family edibles that will make your kitchen tables burst with bold colors and flavors.

	Common name	Scientific name	Flavor / Comments	Maturity
	Pepino melon	<i>S. muricatum</i>	Flavor between a honeydew and a cucumber.	30 to 80 days after pollination
	Naranjilla	<i>S. quitoense</i>	Flavor resembles citrus, mixed with rhubarb and lime.	Up to 6 months, great as a potted plant.
	Wonderberry	<i>S. burbankii</i>	When eaten raw flavor is bland, when cooked for pies has strong berry flavor.	75 days
	Litchi tomato	<i>S. sisymbriifolium</i>	Cherry flavor mixed with a tomato. Grows in a husk similar to tomatillos. Has thorns!	90 days from transplant, requires long growing season
	Udmalbet eggplant	<i>S. melongena</i>	Rare colorful eggplant from India with light green, streaked in purple fruit.	90 days
	Pea Eggplant / Turkey Berry	<i>S. torvum</i>	Looks similar to green peas and have a slightly bitter taste. Vigorous growing warm weathered perennial—great for rootstock for Solanum relatives like tomatoes, peppers, and other eggplants.	70 days

COMPOST TROUBLESHOOTING CONUNDRUM

If you currently compost or have so in the past unsuccessfully check out this troubleshooting guide.

Symptoms	Solutions
BAD ODOR	Add carbon such as leaves, woodchips, cornstalks, soy-based newsprint/snail mail.
COMPOST IS MOIST AND HOT ONLY IN THE CENTER	Too small: add more materials, like above.
EXCESSIVE AMOUNT OF FLIES	Aerate pile to bury kitchen wastes. Insect life is a sign of a productive compost.
LARGE PIECES NOT DECOMPOSING	Pile may be too small. Remove items and cut or shred before adding.
NOT HOT ENOUGH	Too small: add volume to increase the size of the pile, water to promote organisms, nitrogen for them to feed on and air to start the aerobic breakdown OR compost may be finished.
PILE IS WARMER THAN 160°F	Not enough air and carbon. Rotate pile and mix in carbons.
VERMIN	Remove fat items such as meat, animal by-products.



Baby's Breath

The Beat Grows On

Five Flowers To Consider Planting

BY JERRI
COOK



Morning
Glory

IT'S TIME TO GET THE GARDEN STARTED.

Finally. Most of us already know what we're going to plant. We've ordered seed, tended to seedlings, and we're waiting for the perfect day to break into the soil. But once again, I find myself wanting to plant more flowers than I've planned for, which is exactly none. The problem seems to be one of utility. We use vegetables and fruit from the garden for food. Food is a necessity. But are flowers? They must be, because if they weren't a necessity, the thought wouldn't pester me every growing season.

So what's the problem? I think it comes down to lack of planning. You see, I'm a plan person. If it's not written in stone, it's not the plan. It's especially true for the garden. I know exactly what I'm going to plant and where. And even though I never plan for flowers on paper, every year, in order to assuage my inner flower child, I grab a package of bachelor buttons or nasturtiums on the way out of the local hardware store. The sale-rack flower seed goes in around the edges here and there. That's the extent of my flower garden every year, and every year, I regret it.

I started searching for ideas to help me plan for a flower garden, and some of them were just far too great of an undertaking — moon gardens with high-priced exotic plants, Asian gardens complete with fish ponds, Zen gardens with decorative tiles, and well-kept rose gardens with expensive sculptures. They were great to look at, but there's no way I'm going to pull off something that complex. I needed to find a different sphere of inspiration to get me beyond clearance priced bachelor button seed. After giving it some thought, I've decided to plan for and plant five flowers based on my musical tastes. That way, the flowers will be unique to me, and it won't cost me an arm and leg.

Love-Lies-Bleeding. If you're a fan of Sir Elton John, you'll recognize this plant from his hit, "Funeral for a Friend," on the album Goodbye Yellow Brick Road. While the song is about the loneliness that follows the death of a friend, it's surprisingly upbeat for such a deep emotion. That contradiction seems to fit well with *Amaranthus caudatus*, or love-lies-bleeding. While there are different colored varieties, I prefer the tradition crimson teardrop-shaped tufts that tumble from the tops of the stem in long flowing waves will often spill onto the earth below. Like the song, love-lies-bleeding speaks of abundance and thankfulness for the cycle of life. When they're in full bloom, the plants grab the attention of anyone who passes by — like Sir Elton himself.

Baby's Breath. Believe it or not, baby's breath is native to Russia, and that's where one of my favorite musical pieces comes from. In 1933, Sergei Prokofiev wrote the music for a film titled *Lieutenant Kije*. In the film, a clerk in the army makes a mistake, superimposing two names onto an official document. The mistake creates an officer who doesn't exist, but nevertheless manages to garner praise from Russia's top military leaders. In

order to avoid embarrassing Russia's top government officials, the company clerk and his pals make up an entire life, and eventually a death, for the esteemed lieutenant. The mood of the music is both wry and mischievous. One thing I've been advised to be aware of, however, is that baby's breath can be invasive if not well managed. You can't get more Russian than that.

Morning Glories. One of my favorite songs is "Clocks" by Coldplay. Even those of us with the most stress-free lives are keenly aware of time. It's a current that we have no control over. We try to define it with devices that help quantify it — clocks. But the natural world doesn't need man-made devices to know what time it is. Many plants bloom only during certain times of the day. One of those is the humble morning glory, which blooms as early as 5 a.m. under the right conditions. Since I'm an early riser, this just makes sense. I want my plants to get up when I get up.

Not only do they bloom at the break of dawn, morning glories grow fast and keep producing from early spring right up to hard frost. That's my kind of flower. It grows in well in relatively nutrient-poor soil. All it needs is a trellis to stretch on, and it'll climb for the sky. A high achiever. I like that.

Sunflowers. During the Impressionist Era of the late-19th century, sunflowers were the focus of many of the world's greatest painters, including Vincent van Gogh, Kunsthalle Mannheim, and Paul Gauguin. Where there were sunflowers, there were European impressionists painting them. In fact, Paul Gauguin is best known for his piece, *The Painter of Sunflowers*, which is a painting of an artist painting sunflowers. No kidding. It makes sense when you consider the social and political upheaval taking place in Europe in the late 1800s. It was a time of great strife and change. No one could agree

on anything. Instead of painting people, artists began painting their surroundings. Sunflowers don't have political views or social niceties. They just lighten the mood. Which is what the song "Happy" by Pharrell Williams does for me when I listen to it. No matter how strife-filled my day is, when I hear



Forget-me-not

After giving it some thought, I've decided to plan for and plant five flowers based on my musical tastes. That way, the flowers will be unique to me, and it won't cost me an arm and leg.



Sunflower

"Happy," my mood changes. I'm pretty sure if Vincent van Gogh had heard "Happy" before he grabbed the knife, he would've been buried with both of his ears still attached.

Forget-me-nots. Forget-me-nots have been employed by European poets since the 15th century to symbolize steadfast love, because the color blue represents fidelity. And I can't think about steadfast love and fidelity without thinking about a love story brought to life by classical music. People often tell me that they don't listen to classical music. I tell them they're wrong. Classical music is all around us. Most of us listen to some form of it every day, but it's in a context that overshadows what we're actually hearing. Take for example the successful marketing campaign ran by The Beef Council back in the nineties. The "Beef. It's What's for Dinner" commercials began with one of the most acclaimed scores ever written by an American composer. You know it well. It's "Hoe-down" from the American ballet *Rodeo* by Aaron Copland. The ballet takes place in the American West, where a young cowgirl is desperately infatuated with a cowboy who prefers the rancher's much more feminine daughter. After throwing herself at the young man with no results, the cowgirl decides that she didn't like him as much as she thought, and turns her attention to another young man who has admired her for years. Lesson learned. Like the steadfast cowboy who was overshadowed by his rival's stature, the forget-me-not doesn't beg for attention. Instead, it grows low to the ground and does best in the shade of other plants, patiently waited to be appreciated.

Now that I have a plan and a framework that I can work with, I'm feeling much better about my chances of having something other than a few scraggly bachelor's buttons gracing my garden this season. I thought about spreading the flowers throughout the garden, but changed my mind. Instead, I'm going to plant them in a corner and wait for the show to start. After it's over and the applause has died down, I'll send the scarecrow backstage to get autographs. I can't wait. ©

Farrowing On Pasture

What To Know To Ensure Piglets Are Born Safely

BY JODI
CRONAUER
PATTON,
PENNSYLVANIA

SPRINGTIME! THE TIME OF REBIRTH, awakening, and babies! For those of us raising pasture pigs, this is a time of piglets running through the fields and nursing in the sunshine. We raise Idaho Pasture Pigs as well as Kunekune pigs, but most of the information we are going to talk about will apply to other breeds of pasture pigs also.

When farrowing on pasture there are a few important things to remember. Starting with, sows like to be alone to farrow, so if at all possible section off a separate area where she can be alone and have adequate food, water and shelter. We use A-frame housing for the sows to farrow in. The shape of the A-frame allows a place where the piglets can be protected when the sows lay down. We fill all of our shelters with either grass hay or straw for bedding during the cooler months,



Pastured piglets are outside usually the day after birth, making them much heartier animals.
AUTHOR'S PHOTO

but to farrow we recommend straw bedding because it provides additional warmth and cushion and doesn't pack down as quickly. If using a run-in shelter area, just make sure it is big enough to allow room for the sows to comfortably move around without stepping on a piglet. When given the appropriate housing, sows are amazing mothers. Our sows will sit down and lay down in stages to allow time to check where her piglets are. If farrowing in an area where the pigs are together with other sows or a boar, the concern is that they will not be as attentive to the piglets when lying down and the chances of a piglet getting laid on increases. Within a day the piglets are usually up and running around outside, playing, and learning to graze. Because they are outside from birth they have a very good immune system and are a much heartier animal.

Pigs, unlike many other animals, are very true to their due date and we usually have our piglets born within a day of the actual due date. If you can witness the actual breeding you will have a very good idea when the piglets will be arriving. Now that's not to say that they can't be earlier or later, just that more often than not they arrive right at or by the due date. If only our own babies could arrive like that!

So what are some signs that your sow is getting ready to farrow? First, they start to get milk pouches instead of just a big belly. A day or two before they farrow they will get a rounded area surrounding the nipple. This is referred to

Idaho Pastured
Pig sow and piglet.
AUTHOR PHOTO



as a doughnut. Sometimes the doughnuts will turn a pink or an almost red color the day of delivery. One very good sign that your piglets are on their way is that the sow starts nesting. She will carry hay, straw, grass, leaves, sticks and basically anything else she can get into her mouth into the house and make a nice protective nest for the piglets. Most of them will position the birthing area to a protected location, so the piglets have less of a chance of crawling in the wrong direction while the mom is delivering. Some sows calmly gather things, while others have a more frantic need to get it done. Either way, you can expect piglets usually within 24 hours. Not all of the sows "nest" the same, but if you are paying close attention you will usually see some signs.

Again, all of our experience deals with the Idaho Pasture Pigs and the Kunekune pigs, but a lot of this information also applies to the other breeds of Pasture Pigs as well.

When your sow actually goes into labor it is a good idea to keep an eye on her, especially if she is a gilt and this is her first litter. Our pigs usually go into a birthing trance once labor starts and they just lay there and deliver piglets. It is a nice time to check each piglet to make sure they are breathing well and see how their overall health looks. You do not want to disturb your sow, so be limited in the handling of the piglets until you know how your sow is going to react. If your sow gets upset, she will stand up to check on her piglets and the chances of a newborn getting hurt because she either steps on it or lays

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back down on it in her need to push another piglet out, is very high.

As they arrive, the piglets will instinctively know where to go and will start looking for a teat almost immediately. You can pinch off the end of the umbilical cord and dunk it in iodine, but if you have a clean, dry area to farrow in, the umbilical cord will break off and dry up in a couple days without any complications. As the piglets emerge, you will notice a thin sac covering them. Go ahead and pull that off or wipe them down with a towel to remove it. Make sure to remove it from their nose and mouth so that they can breathe easier. If you notice a piglet having a difficult time breathing or that it has a “watery” sound to its breathing, you may want to gently run your finger into its mouth to make sure none of the sac covering has gotten inside and is causing the problem. It is always a good idea to have your veterinarian’s phone number handy in case of an emergency.

Pigs have two horns in their uterus, so it is possible for a portion of the placenta to arrive and have more piglets born. As long as the sow passes the entire placenta at the end of delivery, everything will be fine. Some people get nervous when they see a portion of the placenta and start to worry that something is wrong. This is usually not the case and more often we see her pass some of her placenta before she is done delivering, instead of having all of the piglets out and then passing the placenta like we would expect. If you do see signs of complication such as prolonged pushing without a piglet arriving, there is a possibility that a piglet is stuck in the birth canal. If this does happen, the piglet may have to be pulled out to prevent the death of the mother as well as the other piglets still inside waiting to be born. If you are not a seasoned



Pigs have two horns in their uterus, so it is possible for a portion of the placenta to arrive and have more piglets born. AUTHOR PHOTO

farmer and have not done many pig births, I would recommend calling your veterinarian. Most often, the birth will go fine and the piglets will arrive without any complications. One thing you can do to prevent complications prior to birth is to make sure you are not over feeding your sow. If she is overweight it will greatly increase her chances of having complications during delivery. You can end up with piglets that have grown too big to fit easily through the birth canal as well as have a smaller birth canal due to excess fat deposits.

AFTER BIRTH DAY

After the piglets have arrived your sow may not get up and move around much for the next day. That’s okay! As long as the piglets are nursing well, she has passed her placenta and doesn’t show any signs of distress, let her relax and recover; she did just deliver a whole litter of piglets! Whether you see the piglets as they are being born or a couple hours later, it is a good idea to watch and make sure that all of them are latching on and nursing well. If your piglets are born on the ground (with a bunch of straw as bedding) they will automatically nose at the dirt and get

iron from it. If you are farrowing in stalls inside a barn then it is always a good idea to get a shovel full of dirt to put in with the piglets. We do not give iron shots to our pigs because we have found that simply providing them with the necessary natural substances, such as dirt, gives them the necessary iron their bodies require. Likewise we do not vaccinate our pigs. Again, one of the greatest benefits to raising pigs on pasture is that they build up a wonderful natural immunity. In the same aspect, we do not clip teeth or notch ears.

Our pigs are truly pasture pigs and eat mainly grass and hay, but we do supplement with some pig feed to make sure our pigs are getting the necessary vitamins and minerals that our ground is missing. One thing to remember is that your sow is now feeding a whole litter of piglets, and whether that is five piglets or 15 piglets, it is still an added stress to her body and she is going to require extra food. A lot of people are under the assumption that because she just had babies that she immediately needs extra food. The problem that then arises is that the piglets can get the scours (diarrhea). Scours is one of the most common causes of death in piglets. We recommend not

increasing the feed for three days, so that she does not produce excess milk and thereby decreasing the chances of scours. When you do increase her feed, make sure to do it based on how many piglets she is actually feeding. Again, there is a big difference in five to 15 piglets. So make sure you are not over feeding her. If there is ample grass, she will definitely graze more and you can also supplement with additional hay (grass, clover, or alfalfa hay is the best).

The noted gestation period of pigs is 114 days. We have found that our pigs' normal gestation is 116 days. If you live in warmer climates, then the need to plan your breedings according to the weather is decreased. Those of us who live in climates where we have a lot of snow and cold weather during the winter months have to be more cautious of when our piglets will be arriving. We personally like to have the bulk of our piglets between April 1 and November 1. This usually allows us to have two litters of piglets per sow each year and also allows our sows a period of time each year when they are not pregnant or lactating. We wean our piglets between 4 to 8 weeks old, based on how well they are eating on their own and their overall health. When we wean our piglets, we move the sow to a new pen and leave the piglets in their original pen. This gives them a safe place where they are familiar with everything.

The benefits of raising pigs on pasture are both healthier and heartier pigs. The other benefit is that they have plenty of room and are cleaner pigs overall. The meat itself is higher in Omega 3 fatty acids, is a juicier meat, and also has a sweeter taste than traditional pork. The meat is also a lot darker.

If beautiful green pastures full of happy, healthy pigs makes you smile and delicious plus nutritious pork makes your mouth water, then pasture pigs may be in your future! ©

Pigs, unlike many other animals, are very true to their due date and we usually have our piglets born within a day of the actual due date.

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Ketosis and the Family Cow

BY
KAY WOLFE
TEXAS

IF YOU HAVE A FAMILY MILK COW, chances are you have experienced ketosis or you will. Ketosis is a metabolic disorder that affects many dairy animals after freshening and if untreated can have disastrous results. Prevention, monitoring and quick treatment are the keys to overcoming this dreaded condition.

Of course, if your cow is sick, the first thing to do is contact your local veterinarian. The problem is many of us are in areas without easy access to vets. Our country is experiencing a shortage of large animal veterinarians and even if you have one, there are times they just cannot come to your aid. As with children, animals have a knack for coming down with something on weekends and holidays, leaving us scrambling to find help or even the medication and supplies we need. We have learned the hard way to be prepared for the worst and hope for the best.

WHAT IS KETOSIS?

Ketosis is a complex metabolic condition, not a bacteria or virus-induced disease. In simple terms, ketosis is when the cow is using energy faster than she can digest and create it. A negative energy balance results from a huge glucose demand from milk production, causing the body to burn stored fat, similar to what happens to humans on the Adkins diet. The result is fatty acids in the bloodstream build while glucose levels plummet. The liver tries to keep up but the result of this synthesis is ketones in the system. You may not be familiar with ketones, but you've probably smelled acetone in nail polish remover. It is basically the same thing. As a result, you may even smell the acetone on the cow's breath or in her milk.

Depending on how advanced the disease, the cow will feel bad,



can actually have ketones present without any symptoms, but you need to know if this condition is developing. Since it is hard to predict when your cow will pee, there is a technique that will cause your cow to urinate. If you put your finger under her vulva and stimulate, it should cause her to release her urine—if she has any. If you are a fan of YouTube, you can search it and find some videos showing it being done. We find that fresh cows (those who gave birth recently) generally have to urinate when we start milking due to the contractions, so go about your milking and get ready.

PREVENTING KETOSIS WITH A DRY PERIOD

Now that you know what ketosis is, you need to know when to watch for it. If it is going to happen, it will most likely show up in the first few weeks following freshening (calving). A dairy cow will go from storing energy during her dry period to using energy at an incredible rate overnight in milk production. Just as you and I could not run a marathon without building up endurance, it takes a cow's body some time to adjust to the new demands of milk production. As a result, the longer the dry period between lactations, the more likely a cow will experience ketosis.

All cows need a dry period between her last freshening and her next. The last few weeks in a cow's gestation is when the calf grows the fastest and has the biggest demand on the mother's system. She needs this time to grow her calf and replenish her own reserves. The problem is, they can also gain weight fast during this time if you continue to feed them like you did when they were milking. We feel a two-month dry period is about right. Any less would not give her a rest and any more could lead to a fatty liver. You certainly don't want a starved skinny cow going into calving, but you don't want a fat girl either. Not only could it lead to ketosis but it could result in a larger than normal

calf, resulting in calving difficulties.

Since the dry period is so important, many dairymen have a special "close in" diet. They reduce the grain to dry her up and then slowly increase the feed approaching her due date. You will always need to provide around-the-clock pasture or good hay and fresh water in addition to loose minerals. Energy comes from carbohydrates, not protein, so we love to add sorghum molasses to our cow's feed. It is a bi-product of sugar production. They separate the minerals and vitamins from the sugar and sell this dark molasses as a garden additive for organic gardeners and for animal feed. They save the pure sugar for us humans! You should be able to buy it reasonably in five-gallon buckets from a garden supply or farm supply store.

There are few things more debated in home dairy circles than grain feeding, so you have probably heard a wide range of suggestions. I've heard everything from grass only to three pounds of high protein dairy feed per gallon of production. As with most things, I like to take a middle-of-the-road approach. Beef cows can certainly do fine on grass only, but it takes some preparation to find a true dairy breed that can stay healthy on grass alone. It can certainly be done if you have great grass and hay and your heifer was raised to develop a large active rumen, but if you buy a dairy cull who has been raised on grain, she's going to go down on grass alone.

High protein diets have been linked to a greater incidence of problems like ketosis and mastitis due to the high production of milk. We like to keep the protein at 14 percent or below for supplemental feed. To increase the carbohydrates, we add the sorghum and love that she gets the added minerals and vitamins it contains. We only feed a few pounds a day of mixed grain as a treat, but then we have great grass and we raise our cows on grass to develop their rumen. You will have to play with your feed quantity until you

her production will drop, she will lose condition very fast, she may become dehydrated, stop eating or drastically reduce her feed intake, and if not treated soon will begin to have digestive problems including constipation, and can even have a displaced obosum (meaning the stomach on the bottom will rotate upwards). This disorder can even cause a nervous condition where she licks everything and acts like she's drunk. By the time you see these symptoms, you will know your girl is in serious trouble, but how will you know it is ketosis and not something else? The easiest way is to check her urine for ketones with a ketone strip.

The most convenient place for me to find ketone strips is at my local pharmacy. The bottle will have a color chart on the side ranging from white to dark purple. All you need is a drop of your cow's urine on the tip of the strip and it will immediately turn dark if ketones are present. The darker the color, the more ketones present and the sicker your cow. You



find what works for your girl, but for sure, always make sure she gets the long stem hay or great pasture.

As a recap, we recommend you stop the grain supplement when you dry her up. The dry period should start at eight weeks before her next due date. About five weeks out, start with a small amount of low-protein, high-fiber grain with some molasses poured over it. We also like to add some sea kelp, diatomaceous earth, dolomite and an ounce of raw apple cider vinegar. You can also keep the kelp and dolomite out free choice if you prefer. We have found these added minerals and ingredients help prevent many conditions and keep her in the best of health resulting in being highly fertile. Slowly increase the feed until freshening, when you are giving her the usual amount she eats while lactating.

In order to ease into milk production, we leave the calf with her the first 12 hours and let it nurse, but we don't milk. After that, you can either leave the calf with her or remove him and feed colostrum and milk if you prefer to bottle feed your calves. Watch her udder closely and milk her daily, but otherwise there is no reason to empty it at this point. The more you take out, the more demand it is putting on her system. People will tell you that you

must completely empty the udder or she will get mastitis. If she has had mastitis before and had a lingering germ, then that may be true, but not the rule. You need the germs to cause an infection so keep her in a clean stall or pasture, and you shouldn't have a problem unless you are feeding her a lot of high protein grain that is pushing her production.

By the fourth day, she should be ready to go into full production and the colostrum should be gone. From then on, we milk once a day and completely empty the udder. If you feed grain or have high-producing Holsteins, then you would most likely have to milk twice a day, but we are a home dairy and not looking for maximum production. Our Guernsey girls have been milked once a day for generations and that is without calf sharing. We do not have a mastitis problem and their udders hold up well for years.

TREATING KETOSIS

Now is the time to start monitoring the ketones. If she is clean then you're probably okay. If you see the udder start to turn pink or purple, then now's the time to take action before you see any symptoms. There are two products you can use with her feed to help balance her metabolism. One is glycerin and the other is

propylene glycol. They both work the same way. Glycerin is a natural product, more expensive and harder to find, but I much prefer it because it is natural and the cows seem to like the taste better. I had to order mine online and pay shipping to the farm. Propylene glycol can be purchased at most farm stores and is reasonably priced. Start pouring a half cup or more over her feed and then monitor her ketones to see if they are getting better or worse the next day and adjust the amount accordingly. This is high in carbohydrates and provides the needed glucose similar to a person with low blood sugar.

If despite your best efforts, your cow's ketones are way too high and she's obviously sick, it may be time for an IV. If you've never given an IV to a cow, it sounds scary and you will think it is something you simply can't do. If you are a homesteader and work with your cow every day, you can do this but only if you have the supplies you need. We keep an emergency kit with everything needed to deal with this and other potential problems. We do this because we've been up all night with a sick cow before, thinking she would be gone before the store opened or a vet returned our call. It only takes one night like that and then you'll get prepared. As always, when you are prepared, you seldom need the supplies. It is just part of Murphy's Law I guess!

We use a 500 ml bottle of dextrose (50 percent), a Primary I.V. Set, and "Polypropylene Hub Hypodermic Needle." You may find something you like better though. We bought ours online from Valley Vet, but I'm sure you can find them at other veterinarian supply stores. The packaging will show you how to assemble these items.

You will need to make sure your cow is restrained, especially her head. You can use a stanchion if you have one and can get her in it or you can use a halter. If you have her in the barn, use a lead rope to tie her head to something stable and push her

body up against a wall. If you happen to be out in the field in an emergency and she will not budge, you'll have to restrain her as best you can. The best way to learn how to place the needle in the vein is to go on YouTube and watch several videos of people doing it. They will teach you how to feel for that main vein that runs alongside the neck and insert the needle at an angle. When you do it, do it quickly. Hold the IV tube down and see if blood starts to flow into it. If so, you've hit the right spot. You may want to tape the needle in place so it doesn't pull out or move. Now, raise your bottle above the needle so gravity will feed it into the vein. It may take a while, depending on your tube and needle, so be patient and try to keep her calm. Once your bottle is empty, remove the needle quickly, rub the spot and you're done.

She should get better almost immediately, but that doesn't mean she is well. You'll need to continue to monitor her ketones and adjust her feed accordingly. We have found that good lush pasture puts weight on better than anything else and provides the energy she needs. You should expect the ketones to get lower each day until she is normal again, and in a few weeks she should be out of the woods and fine until her next freshening. If not, something is not right and you'll need to find a vet that can come out and give her a good physical.

We have found that our dairy cows give us very little trouble, but calving is a difficult time. We prefer to hope for the best but be prepared, and ketosis is one of the most likely things that can go wrong. Keep your veterinarian's phone number handy, your emergency kit stocked and you should be able to weather whatever comes your way. Our family dairy cows give so much and we want to be there for them in a moment of crisis. With a little preparation, you can too. ©

Kay Wolfe raises registered Guernsey dairy cows with her husband in Harlingen, Texas.



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Humane Standards and Certification for Animal Products

Part One: Humane Animal Farm Care

BY
HEATHER
SMITH
THOMAS
SALMON, IDAHO

ANIMAL WELFARE ISSUES AND GROWING concerns about humane handling of livestock have led to some new certifications for animal products. Many consumers are interested in where their meat, milk and eggs come from and how the animals were raised and cared for. They are willing to seek out products that have certification assuring that the animals have a good quality of life.

European livestock production has been involved with this type of program for a long time, and during the past decade North American livestock industries have started coming on board with various programs. For instance, Humane Farm Animal Care (HFAC) was founded in 2003. A growing number of branded beef programs and specialty meats now have some kind of humane certification process for their producers. Farmers and ranchers who become part of these programs generally receive premium prices for their products.

Adele Douglass, Chief Executive Officer of HFAC, founded this organization and now directs its programs and activities. "In the U.S. there are no federal laws regulating farm animal use except for the animals used in research and teaching. There is a guide for the use of these animals when researchers are doing an experiment at a university. There are certain norms, and anything outside those norms would have to go to the Animal Care and Use Committee to get permission. These norms are listed in the ag guide," she explains.

"About 20 years ago I was asked to be on that committee, but I didn't know much about farm animals. Over the years I had worked in Congress and lobbied, and during those years had met several women who were animal scientists and veterinarians at various universities. I called them and told them we were working on the issue of gestation crates for sows and asked if I could come to the universities and learn about these. I did that, and learned about alternative

systems and the different issues concerning farm animals —like hens in cages," she says.

"I was shocked at the conditions of laying hens in cages and pigs in gestation crates. People get used to doing things a certain way and don't really look at it objectively. We are all guilty of that in various things that we do, until someone asks why we are doing it that way. Someone might make a suggestion about trying it a different way and then we realize that would work better. But sometimes it's hard to look at it a different way," says Douglass.

"I was appalled at what I saw, and my reaction as a consumer was that if people knew how their food was being produced, they might object. I was naïve, thinking in terms of visions of Old MacDonald's Farm. I met some of the scientists and one of them at Texas Tech had applied for a federal grant to look into humane housing systems for pigs. His proposed project was not only about the housing but also the impact on the environment, human health and safety. It was a multi-disciplinary grant and he needed a humane person involved. When he applied for the grant he put me on it in that category," she says.

"It was a highly competitive grant, and he received it. Since there was some travel money in the



Giving your animals plenty of room to forage and feed is just one example of how to raise livestock humanely.



grant, I mentioned to him that in England there was a program called Freedom Foods, where the RSPCA (Royal Society for the Prevention of Cruelty to Animals—the oldest group of this type in the world, founded in 1828) had a program for pigs. I wanted to learn about that. There was money for this in the grant so I told him I wanted to go see this program,” says Douglass.

“I went in January with a veterinarian and one of his graduate students—and looked at the UK program and how the pigs were being raised. TESCO, a major supermarket in England, featured Freedom Foods. This program is a little different from what I ended up doing; the RSPCA wrote a list of standards and Freedom Foods, a subsidiary, then found producers who could meet the standards, and then bought the pigs, slaughtered and sold them as a brand. Their brand competed in the market; a consumer could buy Freedom Foods pork or other pork products,” she explains.

“Freedom Foods was spending about 1.5 million pounds (about \$3 million U.S. dollars) at that time, in marketing costs, for a country much

smaller than ours. At that time, I would have to start an organization, write standards, and raise money for a non-profit; there would be no way that we could replicate those types of expenditures in our country. Also if you want to help the livestock industry improve, you wouldn’t want to compete with it. You need a program that enables everyone to participate. It must be inclusive rather than exclusive,” she says.

“I came back and thought that the best way to do this would be a market solution. I had worked in Congress and knew that this particular situation should not be a legislative issue. First of all, it took

almost 100 years to come up with a humane slaughter act, and USDA is not interested in regulating animal welfare. Also, people (including myself) are stubborn. If someone tells me I have to do something, it would trigger a negative reaction. This turns people off,” she says.

“To create a law would be an unfunded mandate. I don’t think the government should regulate on-farm practices because farmers are very creative. If farmers came up with a better way, then you’d have to have another act of Congress to change things. I always felt that it is better to use a carrot approach than the big stick approach—rewards for good

behavior rather than punishments. Farmers are not bad guys, and you shouldn't impose laws on them. And if there were laws, who would inspect and who would enforce the laws? It would cost a horrendous amount of money," she explains.

"In Europe they can do this because they are accustomed to regulations and having those enforced. America is a huge country, with many different circumstances. I thought that a voluntary, market-based solution would be much more effective and less costly. The carrot approach is always more successful than a big stick," she points out.

"There are several components to issue. At that time we watched a significant drop in federal dollars to real farmers, extension services, etc. I knew that research was being done by animal scientists, but the information was never getting out to the farmers. I decided I wanted to do something that would benefit farmers. I believe that we are a food-producing nation and that we need to keep our local farmers in business and not become a food-importing nation. I am totally opposed to that scenario," says Douglass.

"I cashed in my retirement and started HFAC as a non-profit organization. First I went to the animal scientists and veterinarians and told them about my idea and asked what they thought. They thought it was a great idea but they wanted to go to England to see how the British people implement their standards. So they paid their own way and we went back again. The RSPCA was wonderful, taking us from one end of England to the other. We looked at laying hens, chickens, pigs, etc. They raise cattle differently there than we do here in the U.S. They don't have feedlots, for instance. One of the things we talked about was how to improve the lives of farm animals used for food production. We debated about whether we should include feedlots and decided that

yes, we need to write standards for feedlots—because if the majority of beef cattle are finished in feedlots we can't ignore that," she explains.

"Our scientific committee got together and reviewed the RSPCA standards, looked at all the scientific literature and best practices and came up with what would constitute the needs of the animal in all sorts of situations," she says.

"With laying hens, for instance, they can't be in cages. They need a certain amount of space to meet their needs. They like to perch, dust bathe, etc., for many reasons. The perching is a natural behavior and also helps them get away from more aggressive individuals," says Douglass.

"We looked at what these birds need and made a list. Whether the birds were indoors or outdoors, this is what they need. In parts of the country it's too cold for them to be outdoors all the time. Their needs should be met year-round, so we didn't require them to be outdoors—their facilities just had to meet certain requirements," she says.

"The organic standards require outdoor access, but don't say how much space, what kind of predator control, parasite control, etc. With our standards, chickens and pigs don't have to be outdoors, but air quality indoors has to be less than 10 parts per million ammonia, pigs need to have straw and be able to root. There should be no gestation stalls. Traditional farrowing crates are not allowed. The space for each gestating sow is 37 square feet per pig. For farrowing, in any type of pen, the sow must be able to turn around and not just stand up and lie down."

The standards for cattle are also very specific. "If they are finished in feedlots they need a certain amount of space, mounds, windbreaks, sun shades, etc. We don't allow animal by-products in the feed, for any species of livestock. Ruminant animals must be allowed out on pasture. Beef cattle are raised

outdoors, not in barns," she says.

"We came up with a list of standards but we also have a long process if those standards need revision. We don't just suddenly change them. If there is new research, the scientific committee has meetings—and producers attend those meetings. We do a draft of the revisions and send it out to all the producers on the program. If it's a beef revision we send it to all the beef producers and they get a chance to comment and discuss this. We get their comments, do another draft, send it out again, and then have a standards committee review it. They make a final draft and then it goes to our board of directors for a yes or no. They can approve or disapprove it, but can't change anything themselves because they are not experts and are not in a position to do that," she explains.

"We revised the standards in 2012 for beef, dairy and young dairy beef. We did a two-day workshop for farmers and paid the way for those who wanted to come. Dr. Hans Coetzee was the researcher who came up with studies on how to use a specific medication to minimize pain for procedures like castration. It's similar to ibuprofen and approved in cattle in Canada and Europe. A veterinarian can write it as an off-label prescription here in the U.S. The actual castration surgery only hurts briefly, but the 24-48 hours afterward can also be painful, and this drug eases that pain. The drug can be given in the animal's water and doesn't have to be injected. You don't want something that requires a veterinarian to be there; farmers can do this themselves. This drug takes the pain away for up to 48 hours. The animal is more likely to eat and move around, which helps minimize swelling. So we revised our standards to include this medication and will hold workshops for farmers and ranchers about this," Douglass finishes. ©



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Healing Herbs for Herding Dogs

BY JUDITH
TOTH BIGHAM
OHIO

ALTHOUGH HERDING IS first and foremost an agricultural enterprise it has in recent years “morphed” into a competitive sport that attracts enthusiasts from all walks of life. Even confirmed “urbanites” who will never have livestock to herd are eager to give their herding-breed companion the opportunity to do what he/she was bred to do... herd livestock.

Herding is a complex activity involving the instinct-based relationship between a prey species (livestock) and two predator species (dog and human). Learning to calmly, confidently and efficiently control and move livestock of both physically and psychologically demanding, on the dog as well as the handler.

Because herding dogs are essentially canine athletes, they, like their human counterparts, are vulnerable to similar performance-related stresses and injuries. The timely administration of the appropriate healing herbs can help these canine athletes recover from minor performance-related injuries, which do not require immediate veterinary care. Such injuries would include insect bites (bee stings), abraded footpads, and superficial wounds and lacerations.

Psychological fatigue (the dog working to point of “mental shutdown”), as well as stress caused by lack of confidence or “performance anxiety,” are additional performance-related issues that could be helped by herbal remedies.

During summertime training sessions or herding trial competitions, it is not unusual for a dog to be stung by a bee while herding livestock. If the ground is especially dry and hard due to lack of rainfall, torn or abraded footpads are possible. Rarely, a recalcitrant sheep might “ram” an inattentive dog, causing a minor soft-tissue injury, and possibly a stress (fear or anxiety) reaction, too.

Wintertime herding contains plenty of hazards. The accumulation of snow between the hairy pads of the feet creates hard, little “snowballs,” which can lead to lameness

resulting from soft-tissue injury (bruising) to the pads themselves. A slip or fall on ice can result in a soft-tissue injury (bruising or strained muscles) to a shoulder or hip. Sharp ice or frozen stones protruding through the snow can cause lacerations on the footpads. Nevertheless, any one of these performance-related injuries could be ameliorated by the timely administration of the appropriate herbal remedy (i.e., arnica for the pain resulting from a soft-tissue injury; Bach Rescue Remedy for Pets to relieve stress and anxiety; yarrow to stop bleeding).

Plants are a powerful and valuable gift of nature. Herbal medicine is an ancient healing tradition, which has been used safely and successfully throughout the ages to treat illness and injury in both beast and humankind. In addition to their healing properties, some plants can be highly nutritious and can act as “tonics” to strengthen the systems of the body. The following herbs can be considered beneficial adjuncts to a herding dog’s health and wellness program:

- **Alfalfa** (powder or capsules) is rich in vitamins and minerals.
- **Dandelion** (fresh leaves, stems and blossoms; powder or capsules) is a digestive tonic and blood cleanser.
- **Kelp and microalgae** (powder or capsules) are rich in vitamins and minerals, especially trace minerals.





- **Nettle** (powder or capsules) contains protein and an impressive array of vitamins and minerals.
- **Slippery elm** (powder or capsules) is a digestive tonic, rich in vitamins and minerals.

A convenient and effective way to incorporate these nutritious, tonic herbs into the diet of a hard-working herding dog would be to blend together equal parts of each herb and mix a tablespoon of the blend into the dog's food once a day. Administering the herbs in capsule form could be more costly, time-consuming and challenging, especially if the dog is reluctant to accept and swallow the capsules.

The sport of herding continues to grow in popularity and attracts new enthusiasts. Many of these owners and handlers, eager to keep their canine companions healthy and happy for as long as possible, seek alternative and

complementary healing and wellness services for their dogs, including acupuncture, chiropractic adjustments, bodywork/massage and hydrotherapy in addition to using the services of a holistic veterinarian for routine canine care.

The judicious administration of healing herbs and herbal remedies to treat minor performance-related injuries, as well as incorporating nutritive, tonic herbs into the dog's diet to support strength and health, supports and enhances the efforts of the herding dog owners to keep his canine athlete in peak-performance condition, both psychologically and physically, enabling the dog to continue doing what they are instinctively "hard-wired" to do—calmly, confidently and efficiently control and move livestock. ©

Sources: Clayton College of Natural Health, May 2010; Holistic Care for Companion Animals certificate, Clayton College of Natural Health, December 2010

Treatments for Minor Injuries

Based on my more than 20 years of experience as a stockdog trainer and herding events judge, insect bites (bee stings, in particular) and psychological stress are the "injuries" most frequently suffered by herding dogs. As a master herbalist specializing in holistic healthcare for herding dogs, I have found the following plant-based (herbal) remedies to be of value in the treatment of minor performance-related injuries:

- **Arnica** (homeopathic "pellets"): relieves pain, especially pain resulting from soft-tissue injuries;
- **Calendula** (topical cream): stimulates wound healing;
- **Ginger** (capsules): relieves nausea;
- **Milk thistle** (capsules): reverses liver damage caused by poisoning (i.e., the dog found and ate something "questionable");
- **Slippery elm** (capsules): eases diarrhea;
- **Valerian** (capsules): relieves nervousness and anxiety; and
- **Yarrow** (powder): stops bleeding.

In addition to the herbs mentioned above, the herding dog handler could add the following to the herbal first-aid kit:

- An essential oil-based insect repellent (spray) to deter biting insects;
- **Bach Rescue Remedy for Pets** (a flower essence blend—administer four drops, orally) to relieve stress or anxiety (it is especially effective for "sound sensitivity," thunder, fireworks, gunshots); and
- An essential oil-based "wound wash" to cleanse minor lacerations and wounds (i.e. abraded footpads) prior to administering the herbal remedy. Do not use as eyewash!

— Judith Toth Bigham



A Journey With the Bees

What to Know as Spring Unfolds into Summer

BY TOM
THEOBALD
COLORADO

IF APRIL IS THE BEEKEEPING equivalent of planting time, then May is when our efforts start to germinate.

We have had an eight-week beekeeping class here in Boulder County, Colorado, for the past 15 years, and I teach three or four sessions during those eight weeks. As the problems we face as beekeepers have grown, I've begun to question what my role should be here. Should I continue to use my 40 years of experience to give new beekeepers a sound foundation or should I discourage them, knowing that the evidence is mounting rapidly that their experience may be costly and disappointing?

I haven't answered those questions yet, and you'll probably see me thinking them through as I complete this series of articles for COUNTRYSIDE. Initially at least I plan to focus on the good side of bees and beekeeping, the happy side that's kept me transfixed for most of my adult life. I'll touch on some of the challenges from time to time, but won't dwell on them...yet. It would be irresponsible of me though, I think, not to ultimately look closely at some of the new challenges we face as beekeepers.

As I say in every beekeeping class, tongue-only-partly-in-cheek, "You don't keep bees, you marry them," and because of that marriage, that choice to become a beekeeper, you sign on to confront anything that threatens your charges. If you don't you aren't a beekeeper, you are what we call a bee-haver.

This craft isn't some great mystery, but it's more than just hanging out a bird house, far more challenging now than it was even 10 years ago, and if you are a bee-haver I can assure you that your bees will likely be dead in short order, one season, perhaps two. In many

parts of the country you may see these same results even with the best of care. Getting into beekeeping is like hopping a freight train—you may see the country, or you may be headed for a train wreck, maybe both—but the only way to find out is to hop on. If you want to be a beekeeper and are willing to give it your best shot, willing to spend the time and attention necessary to do it right, it will open you up to a magic kingdom, a rare window into the natural world where you are an intimate participant not merely an observer.

WELCOMING SPRING

On the far wall of my Honey House where it will be one of the first things I see when I open the door is a bumper sticker I found somewhere years ago—*Just Another Ho Hum Day In Paradise.*

Of course it overstates things. Over the years, I've had my share of wrecks and rodeos, I've had equipment breakdowns when I was heading home with half a ton of just-pulled honey supers, and I've been stuck on the way to a beeyard in the middle of a stream at spring flood from the mountain runoff, with four inches of water running



though the cab of the bee truck, alone and wondering if I could get myself out or if I was about to float away. I've spent many a long night out closing in bees to protect them from spraying, wondering if there might be a mountain lion or a bear out in the dark watching me work. I could go on with a long list that would look like a script to a Laurel and Hardy movie, one disaster after another, but you get the idea. Beekeeping is farming, just with a different kind of livestock, and because it's farming, there is always something about to go wrong just around the corner.

Interspersed with the disasters though were the sunny spring days spent with the bees, watching them happily bringing in nectar and pollen, warm summer evenings when the air around a beeyard is redolent with the fragrance of new nectar and filled with a soft hum coming from the hives as thousands, millions of wings fan to distill that nectar down into honey.

Nearly every month in beekeeping is critical in one way or another, more so the warm months because these days represent the productive season. These are the days when the crop is made or lost and the plotting starts back in March, even February, here in Colorado.

For you newcomers, if you got packages in April, these packages should be establishing themselves.

If you are in dandelion country, and most of us are, the bees should be bringing in some of their own nectar, but it doesn't hurt to continue feeding them, even into the summer. If they stop needing it they'll stop taking it. The queen should be laying well and you should have a nice brood pattern with brood in all stages on two to four frames of honeycomb.

"Brood" is a term that covers all the stages of the new bees as they develop. Honey bees share the same life cycle as butterflies, which many people are more familiar with, the difference being that the life cycle of a bee occurs within the hive. It begins with the queen laying an egg, about the size of a tiny grain of rice, which she sticks to the bottom of the cell, standing up. The egg will hatch in three days into what in the butterfly world would be a caterpillar, a larva. Larvae grow rapidly and at the end of seven days have grown to fill the cell in the honeycomb. They spin a cocoon within the cell and the hive bees cover the cell with a breathable form of beeswax, brown, the color of shopping bag paper. This is what we refer to as "sealed brood," and your packages should have sealed brood filling nearly all of two to four frames of honeycomb.

The total brood cycle covers 21 days, from the day the egg is laid to the emergence of a new bee, her downy body fuzz matted down

from her close confinement. In an hour she will be dried out and fluffed up, looking like a little chick. Her first responsibility is to turn right around and clean the cell she emerged from, and while she's at it maybe a few more in the immediate vicinity. Then she will begin feeding her still-developing sisters, the larvae. For the first three days the nurse bees eat large quantities of honey and pollen, bee bread, which a specialized gland in their jaws convert to a high octane baby food, royal jelly. For the next four days, the larvae are fed bee bread directly, then spin their cocoon and the cell is sealed.

NEARING SUMMER

If you are an experienced beekeeper or if you started a year ago and have successfully overwintered a colony, May presents a different set of circumstances. Your bees are in two hive bodies—deep supers—and are growing rapidly. Bees' natural patterns are to move upward. During the winter they've eaten their way up into their honey stores and the brood and most of the activity will likely be in the second story and the first story will be mostly empty. This isn't always the case: a really strong colony may be using both boxes, but on average most of the occupancy will be in the top box.

As I say in every beekeeping class, tongue-only-partly-in-cheek, “You don’t keep bees, you marry them,” and because of that marriage, that choice to become a beekeeper, you sign on to confront anything that threatens your charges. If you don’t you aren’t a beekeeper, you are what we call a bee-haver.



A colony of bees will more readily recognize space above them rather than below, and this has some important consequences in the spring. If a colony is in the top story, bumping the top, they will begin to feel crowded even though there may be a box of empty comb below, and in the spring this crowding starts the bees on a course to divide and multiply, or swarm. Swarming is a natural occurrence in the spring, but as a beekeeper you don’t want your bees to swarm. These are your workers. These are the bees that are going to make your honey crop, pollinate your garden or your fruit trees. If you are keeping bees in an urban or suburban environment, you need to control swarming not only to maintain a strong population and produce a honey crop, but while swarms may be natural, when they are hanging from your neighbor’s door knob or moving into the wall of their house it may be a strain on neighborly relations.

So how do you control swarming? Giving bees more room is the key. If the lower story is empty the two hive bodies can simply be reversed, putting the empty space above the bees so they can move into it. If both boxes are occupied, then

this reversal has to be a little more surgical, moving brood frames down and honey or empty frames up. For really strong colonies these rearrangements may begin as early as mid-March and be done several times. Just remember, keep the empty space above the bees.

Eventually though the bees will begin to exceed the capacity of the two hive bodies and still need more room, and May is when most colonies reach that point. This is where the honey supers come into play.

Honey supers are put on a colony for one of two reasons: to provide space for honey storage or to give more room and relieve the crowding pressure. This means that honey supers are often put on in the spring long before they are needed for honey storage, but to relieve the crowding pressure and discourage swarming.

When you do this, there is a distinct risk that the queen will move up into these honey supers and begin laying in them. This doesn’t present any problems for the bees, to them comb is comb and it doesn’t matter if that comb is in a hive body or a honey super. It does make a difference to the beekeeper, however. The

comb that has had brood in it will be darkened, and that in turn can darken the resulting honey subsequently stored in those darkened combs. Also, it will require time and additional manipulations to work the queen out of the honey supers soon enough that all of the brood will have emerged before the supers are pulled to extract the honey.

The simple solution to this is a device beekeepers designed many years ago for just this purpose—a queen excluder. A queen excluder is a frame the size of the outside dimensions of the hive, with parallel bars spaced so workers can pass through, but the larger queen can’t. This goes under the honey supers and keeps the queen down below. The colony will have plenty of room for brood rearing in the two hive bodies and the empty supers will take the crowding pressure off and discourage swarming. Like much of beekeeping, this is both art and science. It will usually be effective, but sometimes a slimmer queen will slip through the excluder, and sometimes the bees just have their minds made up and they will swarm regardless of how much room you give them.

LEARNING TO ANTICIPATE

One of the most important skills for beekeepers to cultivate is anticipation. A colony of bees may go into the winter with a population of 30,000 bees, lose half or more and then begin to build again when the days begin to lengthen, early tree pollen begins to appear and the queen commences laying again. By mid-April, certainly by mid-May, the population of a good overwintered colony may be peaking and if the beekeeper doesn't take some of the steps I've described, the bees will be "hanging in the trees."

As beekeepers we have to stay ahead of the bees, anticipate what's up ahead. A good queen can lay about 2,500 eggs a day. She is limited in the early spring by the size of the colony population, the number and ability of the nurse bees to feed the larva, and the size of the night-time cluster on the coldest nights (any brood not covered will chill and die). As we get further into March and then April, the colony population is increasing and the nights are warming, so the queen can lay closer to her capacity. If she is laying 2,500 eggs a day, this means that 21 days down the line there will be 2,500 new bees, and the next day, and the next.

As beekeepers, we are shooting at a moving target somewhere out there in the summer, the summer honey flows. We want the population of a colony to peak just prior to the onset of the major honey flow. We want the maximum number of fielders to harvest the crop. If the colony peaks too early then we have created a large number of consumers, if it peaks too late, we've missed part of the honey flow. Once again, this is a mix of art and science, this is what we shoot for, but a lot can happen between spring and summer.

This may all sound a little too mercenary, but it isn't really. For 40 years my bee business was based on honey production, as that's what paid the bills. By focusing on honey production both the bees and I prospered, their objective after all was the same as mine: honey production. The deal we had was that under my care they would produce more than they needed for the coming winter and I got the surplus. We both benefited. It was a perfect marriage.

So in May look forward to June and July. Know when the major honey flows are likely to occur in your area and begin to shoot for them. If you aren't already aboard, the freight train is pulling away. Hop on. ☺

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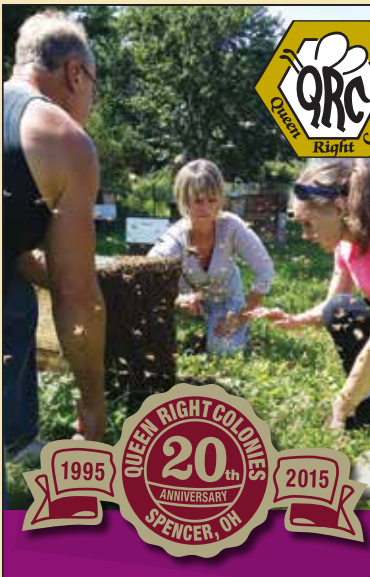


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PHOTOS BY ROGER WEBER



How to Make a Chainsaw Holder

BY ROGER
WEBER
BUTLER, KENTUCKY

I HAD CHAINSAWS LAYING AROUND on the garage floor, which was inconvenient and taking up too much room. I made up this vertical two-saw holder using 2-by-4

pieces and some thin 3/8-inch plywood for spacers around the chainsaw bars. This keeps the saws handy and takes up a very small “footprint” for their storage. 📸

TEN TIPS FOR LEARNING A FOREIGN LANGUAGE

What have I learned in studying Chinese? What advice would I have for my Taiwanese students who are studying English?

1. Less is more. Study short phrases instead of longer sentences. Keep it simple. Later longer sentences will begin to happen naturally. Do not try to rush them.
2. Focus initially on what you will use. I usually am talking to teachers and students in Taiwan. I focus on simple phrases like: I help you. You help me. Very good. Your English is good. I understand.
3. Simple greetings, yes and no, and polite positive words to use as appropriate. Learn how to show respect and appreciation.
4. Learn question words like “what” and connecting words like “and.”
5. Practice your words and phrases on native language speakers every chance you get.
6. Learn the acronym, FORE: family, occupation, recreation and enjoyment. When meeting someone first ask about their family, “Tell me about your family.” Then about their occupation or school if a student. You get the idea: people like to talk about themselves.
7. Learn the words for family members: father, mother, sister, brother, daughter, son, etc.
8. Establish a mini-habit of studying the new language every day for 5-10 minutes. I do this early in the day. A new word and/or a short phrase is enough.
9. Do not try to be an expert or compare yourself to others. Compare yourself to yourself. Here is the important question: Am I better today than I was yesterday? That is all.
10. Practice priming. Do or think of something positive just before you study a new foreign word or phrase. I like to keep what I call a Language Gratitude Journal. First write down something you are thankful for like your family or friend. Then study the new foreign word or phrase.

— Mike Dishnow

Learn A Language, Make A Friend

BY MIKE DISHNOW

I THINK NOWHERE IS IT MORE TRUE than in language study that “less is more.” Bite off small pieces and chew them thoroughly before swallowing and reaching for more.

Begin the journey competently by all means. Take the second step only after the foot is firmly planted on the ground.

The path may seem long. That is because it is long. That is okay. Nothing of worth lies at the end of a short effortless path. Just remember that the longest journey begins with the first step.

Where do you begin? This is often the big question. I am going to suggest a somewhat novel approach. Once you have learned the basic greetings and such focus on the family.

Learn the names for family members in the new language: father, mother, grandparents, siblings, and others. Then learn how to say: Tell me about your family. How many people are there in your family? Tell me about them.

Find a native speaker of the language to practice your new words and phrases on. This is not terribly difficult with modern technology. A Google search will reveal sources of language friends. Find someone who is interested in learning your language. This is a win-win relationship.

I help you. You help me.

I am suggesting that by being polite and asking that new friend about their family you will get started on the path to friendship quickly.

Being positive and showing a sincere interest in another person will bring immense rewards. People like to talk about themselves and will think you are a great conversationalist.

There is simply nothing more helpful in learning a new language than having conversations with a native speaker regularly. This is why language experts and teachers alike recommend immersion. Spend a year in the country and culture whose language you are learning.

For those not in a position to travel to a foreign land to immerse oneself in the language, I suggest Skype or other video conferencing platform. There are several available free.

One source of language help might be a foreign elementary or secondary school whose students are learning your language. If your native language is English you will find many foreign schools interested in developing a Skype relationship for mutual benefit. ☺

Contact the author at mdishnow@mwt.net if you have questions about this article. Mike has several years of experience with such Skype sessions.

From Typical to (Almost) Perfect

How (and Why) I Moved from a Housing Development to a Straw Bale House

BY C.
GONZALEZ
PORT REPUBLIC,
MARYLAND

BY AUGUST 2010, I had had enough. My home was lovely, warm when needed, cool when needed, pretty, functional, and safe. But it lacked natural heating, natural cooling and clustered plumbing. It was energy inefficient, so despite our energy star appliances and superb insulation in the attic, it was like every other housing-development home—on the land, not of the land.

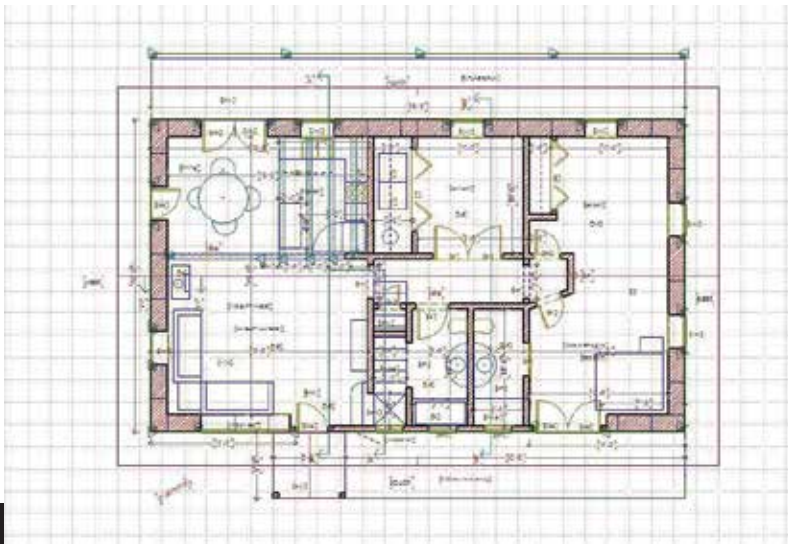
Unwilling to remodel extensively, I determined we needed two things—property to build on and a house plan. Seeking guidance, I began in the local library, borrowing a phenomenal book by Alex Wilson called *Your Green Home: A Guide to Planning a Healthy Environmentally Friendly New Home* (2006: New Society Publishers). The book provided me with some new ideas and confirmed some old ones. The land I eventually purchased had no trees to clear, had excellent southern exposure, and would allow our family to be free of covenants, which has enabled us to keep livestock and mow infrequently.

Mr. Wilson discussed land use and building products in a way that crystalized an idea for me. Don't clear the land of trees to make way for other wood products to make studs. Use what the land provides that is extra. Agricultural land use makes up approximately 30 percent of our local land area, so I pondered. In some areas, air pollution is generated by burning agricultural

waste, like straw, in the fields. What if people used that straw for building? (Straw has other uses—mulch, animal bedding and erosion control, to name a few.) I began researching straw bale construction because of the excellent insulating value of bales (R-33) and its local availability. I borrowed a book belonging to friends of mine called *The Straw Bale House* by Athena Swentzell Steen, Bill Steen, David Bainbridge, and David Eisenberg (1994: Chelsea Green Publishing). I was hooked.

I wanted a different home as well: one story, no excess space filled with stuff, clustered plumbing, and a way to separate noisy appliances from music and movies. And I wanted to build it with straw. Looking online for straw bale house plans, I found Robert Andrews' exceptional site: www.balewatch.com. With more than 50 plans, many shown with modifications, it is a site replete with options. I chose to start with the Habitat floor plan, though I changed it to suit our needs. After mentally planning the house for months, I finally sat down with pencil, paper, and a tape measure.

Within a few days, I was finished. Included were all my interior requirements: one-story level; clustered plumbing; three bedrooms; storage room; great room with kitchen, dining and "living" combined; 36" wide doors for easy clearance of furniture and maybe wheelchairs later in life; and a separation of the piano from



A blueprint of a straw bale home, courtesy of balewatch.com.

Straw has many uses around the homestead, from insulation in the home to animal bedding to erosion control.



the dishwasher. It looked great on paper! Knowing our climate, which often has hurricanes, I chose to have a frame made using posts and beams to provide a sturdy structure for walls and the roof. The straw was used to “in-fill” between the posts.

But what about the other things I hoped for? Mr. Wilson encouraged readers to involve the forces of nature in their homes’ heating, cooling and energy generation. I oriented my house so the largest windows would face south to increase solar gain in the cooler months. I included flooring with a high thermal mass to help store that heat after the sunset. I added deep eaves to shelter the windows from the summer sun. I placed the porch on the east side to provide shady spot to rest on hot summer evenings. Because water conservation and rain water use are priorities of mine, I specified a standing-seam metal roof to allow for easy collection of clean rain water (not contaminated with asphalt bits) at all four corners. Using active solar power made sense in my location, so I added a 5kW solar array on the roof and a solar water heater. Given Maryland’s humid climate, we required a heat pump with air conditioning for summer use. The heat pump’s fan circulates cool air in summer and heated air in the winter. Radiant floor heat was installed in the floor.

Now the situation was this—plan drawn but no land, no architect and no builder. Several searches for each resulted in the purchase of seven

The land I eventually purchased had no trees to clear, had excellent southern exposure, and would allow our family to be free of covenants, which has enabled us to keep livestock and mow infrequently.

acres (in a snow storm); the finding of an understanding, thorough, inexpensive architect; and the hiring of a reliable, understanding contractor after interviewing four. From August 2010 to December 2011, my dream was realized. We spent our first night in our new house December 31, 2011.

In the past three years, several changes have been made. Despite a solar array, I chose net-metering which means that instead of using batteries to store our power, we are tied to the grid. When the grid goes down, so do we, so I had to prepare redundant systems for cooking, water and heat. A gas stove allows us to cook without electricity. Rain barrels provide ample water for livestock and, with proper filtering, for us. I installed a correct-sized wood-burning stove for our great room, which provides ample heat. Placing a metal roof in the middle of an open field on the crest of a hill allows lightning to find our home easily. Air terminals (lightning rods) were installed in 2014 after an electrical

storm caused some damage.

I would do some things differently if I were to rebuild. There’s very little insulation under the slab, so I would add two inches of insulating foam board or straw bale insulation. I also would not install radiant floor heat (which heats the ground at the same time it heats our house). I would use hot water radiators instead. The east side of the house is closest to the road, so time spent on the porch is interrupted by noisy vehicles. The amount of storage space is a bit too low. I’ve added additional flooring in the attic, which has helped. I did not apply for an exemption to the county’s gray water prohibitions. I would enjoy being able to use gray water, although currently we have surplus water.

All in all, designing and building my dream home has been rewarding to the heart and satisfying to the spirit. Our energy consumption is lower than many, and I feel closer to the earth surrounded by our animals and acres of trees, waving grasses and our wetland. ☺

A Bunch of Fellers

What I Learned From My Life as a Forester

BY F. DIANE
PICKETT

IF A TREE FALLS IN THE FOREST and there is no one around to hear it, does it make a sound? You're darn right it does if it is my bloody tree 'cause I ain't leaving the logging camp until the crew cranks up the last battered truck and goes home.

What a wonderful sound the forest makes on its own. The rustle of the trees in the wind, the soft sigh of a pine needle as it floats politely to the earth and the excited chatter of the squirrels celebrating the fact they drove out yet another group of tree devils called harvesters.



The timber business is not for the feint of heart and definitely not for many women. I backed into it reluctantly and set off on a learning curve that had me careening around on two wheels at high speed. I was determined to stay ahead of the pack and that took some real maneuvering.

Before my father died and left me with a huge tree farm, I was a happy camper in the world of medicine with a fascinating career as an administrator of a large group of doctors, almost all of whom were male. Having grown up in an exclusively male household, with no woman in sight, managing men was a natural

for me and it came in very handy as I began to explore the world of forestry. The timber business is an enclave reserved for men only and they are among the toughest, roughest, most cunning group I have ever known. Their goal is to figure out how to steal your trees and make you think they have done you a favor by hauling them away and getting them off your property.

I remember after Pick died, it occurred to me that he had left me no cheat sheet on how to run a timber business, so I decided I better get a little education on the subject. My first idea was to join the Forestry Association. Having done association management for a number of years, it seemed only logical. I failed to realize it was a boys club for grown up men. My first adventure was to take myself off to a national conference. It was a spectacular time to be in Michigan at the peak of the fall color. So, arriving in a golden shower of leaves and a somewhat anxious state of mind, I set off from my hotel room in an attempt to find the usual "welcome reception." That is simply a tired expression for "let's drink up while it's free." The hotel was large with poor signage, so I did the logical thing and followed my nose. I smelled sausage biscuits and knew my group was calling me home. After all, this was a bunch of Southern foresters and pork ran in their veins, as well as on their hair.

I quickly realized about the only education I was going to get was an attempted lesson on how and what to drink. However, I was prepared!

Having hung out with men all my life, I was already in training for the big game and knew when to hold 'em and when to fold 'em. I easily survived and managed to collect more than a few business cards for future reference. I had an absolute forest of consultants willing and anxious to give me advice on a wide variety of subjects, some of them even related to timber. However, I was a novice about cutting down trees, but not about cutting down men. The first time I heard the words "feller buncher," I thought it was a football huddle, but it turned out to be a piece of machinery to cut down and bunch trees into a pile.

Yes, I knew that I had to get this timber thing under my belt and was extremely fortunate to find a college educated forester in my own area who was totally above board and highly skilled. He walked me through the myriad processes of selling timber, but it still took me years to get a real grip on the subject. Selling timber is like playing poker—you have to keep a straight face. You can't let a logger see your weak points or he will cut you down to a stump!

Pick had taught me something about poker because he was also involved in real estate development and those transactions were a little like a baseball umpire yelling "safe." You were always running for first base and sliding into home plate was a sweet victory!

A timber sale is not an easy process and there are a million ways to get cheated. The first thing I learned was that I had to have it cruised. No, I'm not talking about Tom, but an evaluation by an experienced consultant to determine the various species of the woodlands, as well as the volume and current market value for each product. If you skip that

step, you may as well just go on to the bar and spend all your money right then because there won't be enough from that timber sale later to even buy a beer.

Once you get it cruised, then the fun really starts and you get to do a lot of dithering about with some other folks for what is called a preharvest plan. This is the time when you have to think and plan for maintaining the water quality of streams, the impact of skidding on the land, identifying

Negotiated sales are usually done when there is high value product such as hardwoods and other specialty wood. Sealed bid sales often return the highest value and are confidential lump sum written offers...

wetlands, steep grades, planning road access and how to avoid tree and resulting insect damage, where you will cross creeks and the culverts required to bridge them.

Once the cruise and preharvest planning is done, put on your big girl pants and get ready for the

fight of your life—the sale! There are several ways to do a timber sale and there is no one set rule. It all depends on what kind of trees, how many, and how big a hurry you are in. There are two basic kinds of sales—negotiated versus sealed bids. Negotiated sales are usually done when there is high value product such as hardwoods and other specialty wood. Sealed bid sales often return the highest value and are confidential lump sum written offers, whereas negotiated sales are a price per ton per species and product class (pine, pulp, hardwood, poles, saw timber, etc.).

Before you ask for bids you have to decide what kind of harvest it is to be-marked; seed cut or thinning or lump sum and what kind of scale is going to be used and how long the logger will have to cut and remove the trees. Most contracts are for 12 to 24 months to allow for weather and other access issues. A lump sum sale is not a function of volume and the scale is what is used to determine the amount of boards that will be utilized from the diameter of the log. There are three types of scales—Scribner, Doyle and International 1/4. Each produces a different measurement and will directly affect the diameter of your paycheck. It is sort of like weighing a chicken that the butcher told you is a turkey. Size does matter.

Be sure you don't make the mistake of selling your timber by the log load unless you plan to be up a tree checking each load as it leaves the camp.

As for me, I don't need to go to the beauty parlor anymore as I have already pulled out all my hair during these negotiations. ☺

Southern writer F. Diane Pickett is the author of the National Indie Excellence Award-winning book, Never Isn't Long Enough.



Mission: Protect the Homestead (and Laugh)

BY
JUDI AND
KEVIN
THOMPSON

LAST YEAR MY HUSBAND AND I had to take a short trip, which we don't get to do often because of the dogs, cats, rabbits and chickens to be cared for. After asking around, the son and daughter-in-law of our very good friends volunteered to take care of the homestead while we were gone.

They were given directions to our place (not very good, evidently) and took great care of our place while we were gone. They had already gone home by the time we got back, and left the following "mission log" on our table. Great laughs!

Fort Thompson

Field Ops Recon Log
1st Battery, Charlie Company –
Recon Unit: Three-Echo-Five (3E5)
Cmdr: Lt. Col. J.W. Hunt
Ex-O: Sgt. Major E.A. Hunt

14 Feb 2014

2200 — Navigational problems compounded by insufficient intel from FOB “Carroll” resulted in delayed arrival to assigned AOO (Area of Ops). Lack of sufficient night vision equipment caused our lead element to overshoot coordinates once or twice.

Upon arrival, we observed two locals inside the compound accompanied by three highly trained attack dogs. Our company K-9 “Libby,” through superior fighting skill, subdued and distracted the dogs long enough for us to infiltrate.

2245 — Once inside, we extracted a large cache of delicious chili from the compound mess. This improved morale immeasurably.

2400 — We made camp in a rear area of the compound, which was obviously equipped for high-ranking officials.

15 Feb 2014

0730 — The locals vacated the premises but extracted two rabbits upon departure. We assume these rabbits are POWs being transferred to a higher command element for intel purposes. Likelihood of rescue without compromising our primary was almost nil, so no attempt was made. Godspeed rabbits, Godspeed!

0833 — Sgt. Maj. Hunt surprised the unit by cooking us eggs and toast. Quite a treat from the XO!

0930 — We discovered that the compound had a very nice shower with great hot water and elbow room. The XO forgot to squeegee the glass door, however, and was made fun of for it.

1000 — The dogs wrestled. We observed that one called “Daisy” has moves akin to a pro-wrestler.

Some of the men began betting on Daisy for this reason. But when “Molly,” the big dog, had enough... show’s over, no questions asked.

1030 — We sent a long range patrol (LRP) to Eureka Springs. They ate some delicious burgers at the Mud Street Café and browsed the shops for several hours. There may have been some very cute lingerie purchased, but we cannot confirm nor deny.

1500 — Returned to the compound and the fire was out. The XO didn’t like this, so the Lt. Col. spent the next two hours building a dazzling and toasty-warm fire. He knows it shouldn’t have taken that long, but the XO is so cute!

1700 — Classified! Just kidding.

1800 — We ate a big piece of carrot cake for dinner! Little brown dog “Buster,” AKA “Brown” or “Brown Town,” became the Lt. Col.’s best buddy. Snuggliest dog in history. K-9 Libby was pretty jealous.

1830-2200 — Lazy time, 100%. We layed around and fell asleep. (Side note: There were rumors that the chickens were organizing an Olympics Game of their own. Just rumors...)

2350 — The XO woke up chilly so she built the fire back up. Happy XO!

16 Feb 2014

0630 — Woke up with a bed full of attack dogs. Turns out all they want is lots of love. And wrestling...they like lots of wrestling...

0645 — Since the locals had abandoned the livestock, the Lt. Col. fed them. Turns out there was truth to the rumors about the chickens. They play a very entertaining game of keep-away!

0730 — The Lt. Col. gathered six eggs from the hens, but made a miraculous discovery: apparently one of the young hens has been genetically modified to lay golf balls! Yep. Found an egg in one of the nests and right next to it...a perfect golf ball. Amazing. Since the

Lt. Col. is a golfer he has decided at all costs to find the chicken. He wants it. So he laid under the nest and waited. The dogs wrestled.

0830 — The XO made “Buffalo eggs” and pancakes! Mmmm!

1030 — The Lt. Col. played a rousing game of fetch with K-9 Molly. She loves this. Then went back to observation under the nest. Where is the golf ball-laying chicken?!

1200 — Sat outside and watched the trees. Warm and beautiful day! No enemy snipers or scouts, though we were checked out by some overly curious bees. We suspect they may be a recon element of the 3rd SS (Seriously Stupid) Homeland Security Division. We let them pass since they could have been Friendlies. K-9 Daisy tried to eat a few, but fortunately for her, was unsuccessful. K-9 Molly chewed on a stick.

1300 — More fetch with Molly. Luckily, she can’t throw very far—the Lt. Col. gets tired quickly when chasing sticks.

1330 — Still no fresh-laid golf ball. It is notable, however, that an amazing amount of poop can come from chickens when one lays beneath their nest. (Note to Company Supply Sgt.: Order new BDUs for the Lt. Col.)

1400 — Loaded boxes of supplies left by the locals. What a take! The whole unit is very grateful. Intel suggests that the locals will be back soon. Evasion and traceability measures were taken—sheets washed, firewood replaced, tinder, etc., accomplished. A single serving of Muscadine wine was left behind for kicks. The unit also left behind a vast measure of gratitude. Much more than we could carry.

Mission Summary

Blessed and successful! No casualties! (The golf ball chicken mystery remains unsolved, however. We’ll leave this one to our Great General above.) ☺



Trading High Heels for Work Boots

How I Became a
Homesteader

BY JILL
WILMOTH

FOR 25 YEARS, I DRESSED up in my professional suits and high heels and headed off to work. As administrator of an assisted living facility, I took pride in my high pressure/high stress job of running a facility and keeping residents and staff happy and fulfilled on a daily basis. Juggling state regulations, while following health care rules, and offering the best in care to residents was a challenge I accepted and looked forward to each day. I'd lie awake each night, planning and thinking, determined to make our facility one in which we could all be proud. I spent many of my days off being called about staff call out issues, bomb threats, resident falls and gas stoves that love to break down on my vacation time. I thought I was dealing with the stress and handling all the pressure this job put on my home life well, even though I was constantly exhausted and my patience was wearing thin.

I would probably still be there, giving it my all, if a new company hadn't come in and bought out our chain and decided they would prefer to bring in their own administration. One day I had the weight of the assisted living world on my back, and the next day I was asked to pack up my things and wished the best of luck. I remember walking out of the facility that day devastated. I thought it was the worst day of my life. One year later, I found I was happier and more content than I ever imagined.

I left the office that day with my car filled with 25 years of "stuff" I had accumulated, along with my framed licenses and certificates. As I drove home, I couldn't fight back the tears. I had made the assisted living home my world and had given it everything I had to ensure it ran smoothly and provided the very best in care to our residents whom I had come to love over this long time period.

After a few months of depression, I woke up one morning and walked outside onto our 20-acre farm. It was a beautiful sunny morning and the horses were grazing in the green meadows and the chickens were scratching in the dirt while squirrels hurried from one pecan tree to another and birds sang all around. It was something about all the beauty and tranquility that day that made me stop and wonder why I wasn't enjoying this simple life without all the stress and pressures I had faced for the last 25 years of my life. My husband and I had bought

No longer do I lie awake worrying about state regulations and inspections. Instead, I sleep peacefully and dream of jars of apples, the smell of fresh cut hay, and the sounds of happy horses nickering.

this little farm 15 years ago, but I was so caught up in my career that I really hadn't appreciated all it had to offer. I began to take more interest in our horses and spent time with them. They each had a unique personality and grooming them each day while talking with them gave me immense pleasure. We went to an auction and bought three miniature horses. I was very excited about this new project and helped my husband build a mini horse barn for them. It was a dream barn any miniature would be proud to live in.

I didn't stop there. I helped my husband put up a board fence which enhanced our property's appearance and the minis had a beautiful lush pasture in which to eat and roam. Each morning I began to get up at 6 a.m. and let all the horses out and watch them go galloping off to enjoy another day of eating and running. Then we decided to add to our chicken population and built more chicken coops and researched all kinds of bird breeds. Some of these new breeds laid colored eggs, so each day I would grab my egg basket and run down to the chicken pens and gather eggs, anxious to see how many colored ones I would get each day.

We began to sell fresh eggs to family and neighbors, and this was yet another project that brought me fulfillment and happiness. I had thought I would probably sleep late every morning after losing my job, but I found I had a new sense of energy and excitement in

which I couldn't wait to get out of bed each morning. Instead of my usual getting dressed up and doing my makeup and fixing my hair and sporting those uncomfortable high heels, I now pulled on jeans and work boots and headed out to take care of the horses. Cleaning out their sheds became more a labor of love than a dirty chore.

Listening to the roosters crow always brought a smile to my face as I gladly welcomed a new morning in which to begin all my chores. Things were going so well, we decided to plant a huge garden. This was a lot of work, but oh, so rewarding. We were eating healthier and the fresh veggies were delicious. I began to learn to can and put up lots of food for winter. We filled the freezer with corn, butterbeans, and squash. I canned so many items my house looked like a grocery store. Next year, I plan to go to the local farmer's market and sell fresh eggs and garden items to bring in a little income.

My life has changed drastically from business suits and high heels and the daily stress I experienced to meet all the expectations my career required of me. I now feel relaxed and care free even though I am working harder than ever. We

have so many more plans to make our farm one of a kind and it is a joy to sit down and plan out our dreams. No longer do I lie awake worrying about state regulations and inspections. Instead, I sleep peacefully and dream of jars of apples, the smell of fresh cut hay, and the sounds of happy horses nickering. We waste nothing and the animals enjoy our garden as much as we do. I used to watch Green Acres and wondered how in the world Oliver and Lisa Douglas could leave a beautiful penthouse in New York and be happy on a run-down farm. Now I understand perfectly. Fresh air, no stress and enjoying life is a great substitute for a hectic working environment.

We have learned to be self-sufficient and not only are we doing fine financially because of this, but our physical health has improved dramatically. I now have a spring in my step and I would suggest to anyone who is beginning to feel a little burnt out to become involved in some type of little farm or homestead. It doesn't matter how big it is as long as it is yours. As for me, I wouldn't change out of these ugly old work boots back into my pretty high heels for all the money in the world. ©

The Truth about Farmsteading



BY
RHONDA
CRANK

AMONG NEW OR WANNABE farmsteaders (or homesteaders), there is often a sense of romanticism. They begin their journey to a simpler, self-sufficient lifestyle and are quickly overwhelmed by what seems to be contradictions in the lifestyle. The idea of “living off the land,” being more in tune with nature, and enjoying the many benefits of a simpler lifestyle are what attract many people to the farming life. At the same time, the reality of having to put down a sick or injured animal, butchering time, and other everyday, difficult decisions facing homesteaders are too much for the inexperienced.

When people begin this journey with a romantic view, the reality can be very disappointing. There is a bittersweet mix to the realities and joys of our way of life. Although I am a romantic by nature, having been born and raised as a farm girl I knew the realities and am not disillusioned by them. They’re in balance for us

and that makes all the difference.

What most people envision when they begin dreaming about homesteading: rolling green pastures with cattle and sheep grazing; ideal chicken coops and yards; chickens free-ranging; goats and hogs neatly behind their secure fences; beautiful clean barns; the nice white farmhouse with the picket fence and at least two dogs in the yard. If a farmer does manage to obtain this ideal, it is only after years of sacrifice, planning and countless hours of hard work, tears, sweat and yes, even blood. The truth is, most of us don’t achieve that and

really, we don't all want that.

If you're like me, the reality of farm life is this: waking up before dawn, turning on the coffee pot, getting dressed and preparing to do chores.

It's raining? It's snowing? It's storming? Deep sigh. It doesn't matter, the animals have to be cared for. You have a cold, the flu, or just feel like sleeping in? Too bad, you still have the chores to do. Sick animals often have to be tended all night. Birthing season? Sleep becomes a rare commodity. The one thing you can count on every day is the unexpected: a fence gets broken; a piece of equipment goes down; a skunk shows up at the hen house; late night awakenings to deal with predators...on and on the list goes.

So why would anyone desire and dream of this life? The realities and the joys of it. Yes, they go hand in hand. Discouraged? Don't be. The truth is that the farming life is often difficult, challenging, even exhausting, but this is also what makes up the joy, surprise and blessings of it.

Planting seeds, watching them break through the ground and do exactly what God designed them to do thousands of years ago is exhilarating. The pure joy that comes from watching and caring for your hen as she sets eggs and after 21 days seeing her excitement as they begin to hatch, just can't be explained in words. The excitement, fear and anticipation that comes when your goat or cow is giving birth and she wants you right there with her. So you're there to comfort her and help her as she gives birth to the next generation of your farm animals; only a farmer can understand this rush of emotions. There are beautiful sunsets; long walks around the property checking fences; a nice cup of coffee or a glass of wine on the back porch looking out over the fields or the

woods; watching the wildlife move around the property—all these bring overwhelming feelings of satisfaction, well-being, and gratitude to fill my heart. These are the essence of farming.

The hardest days, for me, are butchering days. I've never gotten used to those days, and I hope

Discouraged?

Don't be.

The truth is that the farming life is *often* difficult, challenging, even exhausting, but this is also what makes up the joy, surprise and blessings of it.

I never do. Death on the farm, whether by butchering, culling, illness, accident or predator, is probably what most farmers would say is the hardest part of the life. But the reality of self-sufficiency is that something dies for you to put food on the table. It's really no different for those who buy their meat at the store. Somewhere, somebody kills the animal that makes a steak, chicken breasts, a roast, bacon, or even a fish. It's all part of the circle of life, you just don't have to be a part of it. For us, being a part of it is one of the main reasons we are farmsteaders. For us, the knowledge of where the food that we're putting on

the table comes from, how it was grown, how it was handled and processed, what it was fed, and how it was treated cannot have a monetary value. As a farmer, we are always in the circle of life.

I wanted to offer some words of encouragement and tips to help you on your way.

1) Deal with and face the realities of farming. Know that there are good days and bad days, just as in any other walk of life. You will make good decisions and bad decisions, you just face them and deal with the choices you make.

2) Set your priorities and be realistic with them. Make a list of what you want to accomplish, setting it in order of priority, then work toward those goals. Start with something small, like chickens for instance, and build from there. If you don't have a lot of experience gardening, start with a small garden. Get with a local farmer and spend time with them, help them work their gardens, maybe even for shares while you learn from them. Most of us are happy to help others learn and grow. Don't undertake too much, that's part of prioritizing.

3) Expect the unexpected. You have to be flexible. I start every day with a list of things that I would like to accomplish that day and every day something gets added unexpectedly, without fail. So you make adjustments. Be willing to change your plan, re-prioritize, be flexible—now that's a necessary trait for a farmer!

4) Don't be afraid of failure. Even though I was born and raised on a farm, I still fail (shocker, huh)! We have to see failure as an opportunity to learn. Sometimes things happen that are out of your control. Maybe you simply didn't know, or you

took a shortcut that didn't work, or tried something new. Failure is only the opportunity to grow in skill, experience and knowledge.

5) Don't be afraid ask questions.

When I was a little girl I asked a lot of questions. Someone in my family was trying to discourage me from this and my grandfather helped me to feel better. He said, "Rhonda Lynn (he always

used my first and middle name), the only stupid question is a question that you already know the answer to." He was right.

Don't be ashamed or afraid to ask questions. I still ask questions.

Experience is the best teacher. No farmer ever gets to the place where they know it all, never.

There are always things that can be done better, more efficiently;

areas you want to enlarge that require different techniques; things you want to add to your life, or farm that bring the need to learn about another animal, plant, etc. Sometimes the hardest thing to do is to unlearn the way you have been doing things. Often I find that I am unlearning something and remembering the way my grandparents taught me to do it.

6) Don't worry about what other people expect or think.

You and your family know the reasons why you're farming, the things you want to accomplish, and what really matters to you. While seeking the advice of others is important, you cannot let their expectations and the things they do or say cause you to feel inadequate, stressed, or like your way isn't worthwhile. We strive to live by something my grandfather always



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said, "There's as many ways of gettin' a farm job done as there's farmers. Ya gotta be willing to listen, help, and learn from 'em, even it's just to see what not to do."

7) Above all else, you have to have a sense of humor. My grandmother always said, "It's better to laugh than cry." The older I get, the more I realize she is so right! Getting frustrated or upset in any given situation can only cause things to escalate. You have to learn to laugh at yourself, at your mistakes, and even laugh with others who are sometimes laughing at you.

When you feel yourself becoming overwhelmed, take a break—move around your place; remind yourself of your goals; your reasons for this lifestyle; and take a few focused, deep breaths. As you and your place grow, you can take on more and more, but little bites are easier

to swallow than a mouthful.

No matter how much we read, we really only learn by doing, making mistakes and adjusting to them, so give yourself and your family a learning curve. Most importantly, remember to enjoy this way of life. It's as rewarding as it is challenging. Your journey is just that, your journey.

I hope that your time spent with me on these pages has allowed you to find some encouragement; some freedom, and that you are now able to take a deep breath and embrace the realities and joys of the farming life. This lifestyle is so wonderful, so energizing, complex, and yes, often times exhausting, but worth it? Oh most definitely! ☺

Reach Rhonda Crank at rhonda@thefarmerslamp.com, or read her blog at www.thefarmerslamp.com.



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The First Year Begins

We Learned a Lot When We Established Our Small Farm



BY
JANICE BEVER
HIGHLAND
HILLS FARM
CHARLESTON,
NEW YORK

THE SUMMER OF 1996 BEGAN a new episode in our lives. My fiancé and I had been searching for a place to move our animals to begin our married life. We had both been married previously with grown children and at this point wanted to stay in an area near all of them, yet get to our jobs and doctors and shopping. Land prices had gone up dramatically over the years and so had property taxes. Sticker shock set in quickly. We hit the roads and drove around all the places we thought we could find something. We also stopped at real estate offices, but when they discovered we had so little to spend, they very quickly lost interest and showed us the door. We answered ads in papers, left notes at prospective houses and seemed to just literally go in circles getting nowhere fast.

Finally, after weeks of looking, we spotted a small sign from a land investor stating he bought up old farmland and subdivided it and held the mortgages. We made an appointment and met at an old decrepit dairy farm to take a look. A younger couple had just bought the house and barns six weeks before, and the two other parcels were a bit too small for us. What was left was a 32-acre mixed hayfield and woods. The reason it hadn't sold became very obvious. There was no access! The only way

in was up a shale embankment or across the neighbor's driveway. He "assured" us there was no problem with taking the Jeep up their driveway to get on the path to the property. We found out how wrong he was, as the new owner came running out screaming and waving her arms wildly for us to get the heck off her property! Welcome to the neighborhood.

It was a bit too late at that point, so we took the coward's way out and Ron pushed the Jeep further along the trail to the hayfield. It was obvious — this place had never been cared for properly or farmed in quite a while. The "hay" was over my head and there was simply no way to even see the lay of the land. There was a barely noticeable old logging path that kind of led to the woods, and we headed that way. Luckily it had the old stone walls and the agent had everything newly surveyed, so boundary lines were clearly marked. We walked and found the blaze marks on the trees, steel pins and an old cement monument deep in the woods. The great part was this property adjoined hundred more isolated acres that were landlocked and turned to swamp; no neighbors that way.

The view from the top of the land overlooks the historic Mohawk Valley, and you can see to the Adirondack Mountains and towns along the way. After all these years, I am still entranced by this breathtaking scene. The early settlers must have felt the same way.

After some time of swatting bugs and marveling at the woods, we wandered to the fields and more than once my soon-to-be-husband had to pick me up from the ground after I became entangled in the mass of weeds and grasses that filled the fields.

A natural spring seeped from the

embankment of the far field and we figured this could be enlarged as a pond at some point. We got an idea by then of what we could do with this place and if it would



A view of the Adirondack Mountains in New York.

work for us, and how we could get a road in. The price had been dropped because no one wanted to bother with tackling all this, but we were tired and discouraged and decided we didn't have anything to lose. The shock came as we were leaving and the agent told us someone else was stopping to look, so if we wanted it, a check would hold it. Okay, the oldest trick in the book, but how would we really know? Could we take the change he was just trying to

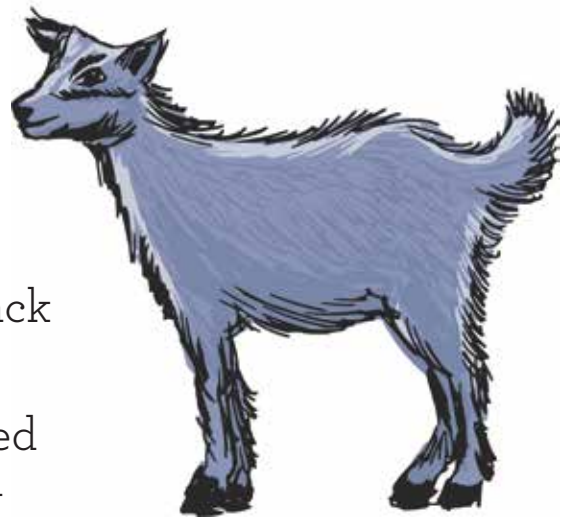
push us to buy? All we had hinged on making a decent attempt at finding ourselves a future home.

Shaking and terrified, I wrote the check—\$1,000 hard-earned dollars for a chance at a new life for us. The agent would hold the mortgage until we secured our own financing or paid off the balance. Our 32 acres cost about \$25,000 at eight percent interest. The monthly payments were about \$280. Arrangements were made for a swift closing and after a minimal amount of waiting and paperwork, we had our very own little farm.

Large equipment was brought in to dig out the shale embankment and put in a culvert at the road. This was accomplished pretty quickly and Ron, his younger brother, his niece and her boyfriend, helped with stringing high tensile fence and we were able to move our animals in. The woods provided shelter and they would need that to make do until the barn went up. We put up tarps between the trees for the horses, goats and my pot bellied pig. The dogs were in chain link kennels and the Scotch Highland cattle did just fine in the weather. As we were building in the hayfield, clearing was a matter of having someone come in with a mower so we could get a backhoe in to dig the holes for posts for our pole barn.

Ron and I were working crazy hours and days, anything to bring in some money. We borrowed an old generator to power the few tools we had and Ron's friend and co-worker was studying for his engineering license, so he helped with making sure the building was structurally up to code. Every spare moment was spent finding the best prices for supplies and getting them to the site, and then began the backbreaking work of getting things put together. A typical day would be Ron leaving

The view from the top of the land overlooks the historic Mohawk Valley, and you can see to the Adirondack Mountains and towns along the way. After all these years, I am still entranced by this breathtaking scene. The early settlers must have felt the same way.



for work before light to a small city about 25 miles away, and me driving to the farm and feeding the animals, then going to work on the other side of the Mohawk River and back up the other side of the mountain to be in a classroom before 7:30 a.m. I look back now and it frightens and exhausts me to even think about those early days. You do what you must to survive and hope for things to get better.

That first year was a test of our new marriage and of what we were capable of enduring. We had a simple ceremony in the roadway of our new property with the wind gently blowing the bobbing wildflowers as we exchanged our vows. A cousin and his wife had flown in from a business trip in California to attend our wedding. He arrived early and not knowing that there was no real road or house (or anything else), decided to go off-roading in his beautiful new black Lexus. He drove through the fields with grass over the windshield trying to find a road! Ron soon discovered a closeness and craziness of an Italian-American family. (All these years later, he still marvels at some of the things

we do!) It was a lovely last day of summer and the beginning of our new life. My daughter decorated in my favorite blue with fresh flowers and silk arrangements. The yard was in bloom with my mom and Aunt Mary's beloved flowers. Dear friends and favorite cousins helped make this a special day.

Our honeymoon was a night at a really nice hotel in Saratoga Springs, and then on to a truck and tractor show at the local fair the next day. My new stepdaughter and her boyfriend fed the animals while we were gone. The support of family and friends made all the difference during this very trying time.

We learned to barter and trade, and we met others who were attempting to live this same type of lifestyle. We lived in a small old house trailer on a dairy farm that my husband had worked on before the place went belly up. We drove the 10 miles to our new place, sometimes several times a day to check the animals or drop off needed supplies. We had decided on a 28-foot by 50-foot pole building, using pressure treated posts and rough-cut lumber

from local sawmills. We made slow and steady progress; the animals managed better than us.

I awoke one night to the sound of thunder and lightening. Being the calm, rational person that I am, I shook my new husband awake and insisted we drive to the farm at 2 a.m. to check on everyone. I was just mildly hysterical. Driving up the muddy road with flashes of lightening and torrential downpour, we got out of the Jeep and holding flashlights, located the horses in the pasture. I couldn't believe they were out in this instead of in the woods. After trying to coax the horses to the woods and getting nowhere, we were soaked. I let my husband convince me they were okay and we had to be up for work soon. Little did I know that this would be just one of many "adventures" that would await me.

Before the first hard blast of winter, we had the barn siding on. We bought a huge orange tarp for the roof until we had money for the steel that would eventually cover it. Winter arrived hard and brutal in 1996. It was a nightmare getting that little CJ-J Jeep to plow that much snow up our 1,200-foot

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lane. Sometimes it was impossible and we used various means to drag hay bales to feed the critters. The ducks, chickens, goats, llama, pig, horses and cattle learned the safety of the barn was the place to be.

The decision was made to buy an older camper and move it to the farm to live in while we figured out our next move toward permanent housing. We found an affordable one nearby and a friend moved it with his truck. Adding our old picnic table and some gas lanterns, it was like paradise to be there and keep an eye on things.

We used every penny to buy supplies and keep the animals fed and healthy. Luckily the pastures were able to accommodate multiple grazing species—goats loved the browse, horses had grass, Scotch Highlands selected young saplings, and the goats finished off the stray leaves and bark. It really helped having them all working on these old neglected fields and bring them back to productivity. We kept a five-acre pasture for grazing and the neighboring five acres for hayfield.

In the meantime, we discovered our woodlot was a thriving, though over crowded, sugar bush. We had all the firewood we would ever need and the possibility of logging enough timber for a home. The water hole in the far field yielded a nice little spring fed pond our son-in-law dug out with a backhoe.

Things were starting to look up. ©

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More Pros Than Cons

Genetically Engineered Crops Divide the Food Movement

BY JOHN
HIBMA

FARMERS FIND THEMSELVES SQUARELY in the middle of the debate over genetically engineered (GE) crops and foods. Also referred to as genetically modified organisms—GMO—the concern over the genetic engineering of our foods is part of the larger all-natural, sustainable and organic movements that have emerged over the past decades. A growing segment of the population now prefers not to consume foods that have been genetically engineered or modified. These foods include those that have been directly modified such as grains and vegetables as well as meats and dairy products coming from animals that have consumed GMO feedstuffs.



Critics see the GE of crops as presenting unnecessary risks to the food supply and human health, placing the control of something so basic and necessary to the survival of human-kind in the hands of monolithic corporations with greater wealth than some countries. The new technologies producing GE foods are seen as risky, producing foods that are "unnatural" which makes them potentially harmful, as well.

Others see the GE of crops as a much needed advancement to modern agriculture and the future needs of feeding a hungry world population that's forecast to reach 10 billion by mid-century. The emergence of modern genetic engineering provides a new tool for developing and improving crops that will increase yields and improve the economies of farming worldwide.

Farmers everywhere have been bombarded by the

GMO/non-GMO controversy with both farmers and consumers questioning the environmental and ethical impacts of GE crops. Three key questions that have emerged over GE are:

- By modifying our foods on a genetic level, are we permanently altering and unknowingly damaging select foods that may result in irreparable harm to the human race sometime in the future?
- Are people's civil rights being violated as genetically engineered foods are being introduced into the food chain?
- What are the economic and ethical ramifications as a growing percentage of our food supply is being controlled by a handful of mega-companies that have the financial and legal resources to manipulate nutrition through genetic engineering around the world?

Dr. Margaret Smith, a geneticist specializing in plant breeding at Cornell University, explains that genetic engineering is a logical extension of what plant breeders have always done. She points out that our domesticated crops and animals are already "not natural" due to centuries of cross-breeding and hybridization. Genetic engineering is a new tool for breeding improved crops. Modern GE technology moves beyond the traditional cross-breeding and hybridization, providing faster improvement of crops that can stand up to harsher growing conditions and be brought to market much more

quickly than through traditional methods of plant breeding.

Genetic engineering alters the properties of plants by moving specific genes between them or by modifying existing genes. Genetic engineering can also correct a defective gene and enable plants to turn a gene on or off. Corn, soybeans, canola, cotton and alfalfa now have both herbicide tolerance and insecticide traits built into them. In tropical regions, papaya and squash have been genetically engineered to resist viruses that commonly afflict those crops. (On a personal note I hope the Cavendish Banana can be saved from extinction through genetic engineering.) All of this has been done enabling farmers to reduce the input costs such as labor, herbicides and pesticides, reducing the chances of crop failure and improving crop yields.

The controversy over genetic engineering arises because the general population has little understanding of plant breeding and the processes involved. Adding

to the confusion, the term “GMO” implies that our crops were not previously genetically altered prior to modern GE technology. The term has been embraced by the mainstream media as “a bad thing” and essentially puts the monkey on the back of pro-GMO to explain that GMO has been around for many years with no food safety issues.

Cornell’s Dr. Smith explains that a body of more than 100 independently-funded studies has not revealed evidence of any food or feed safety concerns with currently-commercialized GE crop varieties. Those few studies that have purported to show problems from feeding GE crops have been very widely discredited by experienced

scientists for their poor design, inappropriate analysis, and other scientific problems. Nevertheless the fear still exists that a scientist will make a mistake and create a disaster.

A National Research Council study showed that the adoption of GE varieties resulted in positive environmental impacts from reduced insecticide usage and less need for soil tillage. Although impacts vary from farm to farm due to differences in environment, soils, and production systems and practices, this study found that many farmers had benefited economically from GE crop varieties.

The results of herbicide use are less clear. While herbicides are still being used with GE crops it appears that there’s a shift toward using less toxic herbicides in place of the more environmentally undesirable herbicides. Dr. Smith explains that

about what GE foods are and are not. Many ingredients in our foods are highly refined and purified, having no protein or DNA which makes them indistinguishable from and chemically identical to the non-GMO variety. Of course, the public has the right to know what’s in their foods. However, this mostly emotional debate over labeling of GMO/non-GMO focuses on foods and ingredients that often contain no GMO or non-GMO characteristics. As an example, take sugar made from sugar beets. Regardless of whether the sugar beet was GMO or non-GMO, the sugar coming from that beet is only a sugar hydrocarbon molecule that contains no genetic material.

Modern genetic engineering also begs the question of whether it’s prudent to allow just a handful of companies to “own” crop genetics.

Some may fear that large companies are in the GE business solely to enrich themselves and their altruistic intentions will be short lived and last only until the profits run out. Agriculture is

The controversy over genetic engineering arises because the general population has little understanding of plant breeding and the processes involved.

opponents of GE crops can point to data showing that increased GE crop adoption has resulted in increased herbicide use, and at the same time the advocates of GE crops can point to data showing that more environmentally-friendly herbicides are being used and reduced tillage (with its environmental benefits) has been promoted.

Additional controversy over GE focuses on the public’s right to know if their food contains GMO. Consumers question whether GE crop varieties that find their way into our food supply (animals included) are safe and whether GE technology has or could introduce allergens into common foods. Once again, the problem lies with misinformation

no longer the simple business of farmers planting crops (or raising animals) for local consumption and hoping the weather or the bugs don’t destroy the crops and wipe out their livelihood. Agriculture has evolved into big business with large private sector companies spending millions of dollars to improve nutrition and standards of living for millions of people worldwide.

Regardless of what side of the debate you come down on, genetic engineering in agriculture is a work in progress and it must be evaluated in the context of the greater good of future humanity. ©

Many thanks to Dr. Margaret Smith of Cornell University for sharing her research.

A Father's Day Tradition

BY MARSHALL
NYCH
PENNSYLVANIA

TO ME, JUNE IS THE golden month. All of her treasures seemingly offer a glimpse of gold. I am quite familiar with the prominent colors of the other 11 months — January's whites, April's greens, and October's reds. Still, I have yet to see gold as richly solid as June's early summer sunrise, raked hay field, or glisten of a sunfish. Never could I imagine June's billions of bullions could be outshined.



The author, with his daughter, Leah, during their first family fishing trip.

AUTHOR PHOTOS

Then, along came my daughter, Leah. Her wavy gold locks of hair beam around our home like brilliant sunshine. In my limited, short experience as a dad, I have come to understand the rank of father is synonymous with endless fodder. Such was Father's Day this past June.

To my wife Laura and I, both teachers, June meant the end of another academic year. Leah's great-grandparents, Papa and Gramma as she endearingly refers to them, misguided her every Tuesday. Funny, just spending a day per week on the family farm, my toddler has begun sounding like an 80-year-old woman. It's not unusual for Leah to spout a quote like, "Looks to be." She has fired back, "I suppose so" a time or two. Papa's personal favorite, surely inspired by Gramma, "Papa, get on the porch and stay out of trouble!"

Invigorated by the splendor of June and pride of being a dad on Father's Day, I decided to lead my family of three, straying from the porch and venturing into trouble. What better way to experience varying degrees of dilemma than by fishing?

Excited for my daughter's first ever trip, I asked, "Leah, wanna' catch a big fish?"

Leah's entire face surrendered to her signature smile, her cheeks dimpled, her lips arched, and her eyes squinted. Never does my little girl mirror her beautiful mother more than when she smiles.

With such an unforgettable reaction, I was shocked as Leah answered, "No Dadda..."

My mind raced. We had been talking about this trip for weeks. Had I tried introducing her to

adventure and fishing too early? Would my idea for our first annual Father's Day fishing trip tradition backlash? It couldn't be...I had burned all my Cabela's points on a Barbie rod and a pink sleeping bag.

Correcting me, which I have become brutally accustomed to, Leah then finished her thought, "Jist a lil' one Dadda."

Along with my two girls, the Nych Family loaded all the makings of a good trip into the truck. I even let Leah sit on my lap so she could pretend to drive along the hay field to our farm pond. Once parked, Laura grabbed some snacks and the camera. A bamboo cane pole in one hand and my daughter's hand in the other, I guided Leah's three foot frame to the best spot in the pond. Here, a small stream trickled into our Pennsylvania farm pond. Knowing panfish cannot resist flash, I selected a bead head nymph to add luster.

Carefully, I offered the cane pole to Leah. With the confidence of a seasoned angler, she gripped it as if it were a wand. Magically, my daughter's nymph landed right in the sweet spot of the patient current. At just 2 years and 2 months, Leah summoned a sunfish within seconds of waving her bamboo wand.

Camera clicks and congratulations filled this golden June afternoon. Leah's biggest cheerleader, Mom, not only provided refreshment to our little angler, she also made sure we'd have a snapshot to help remember this moment. The three of us agreed we wouldn't forget a day like today without a photo.

I have heard countless experiences from fellow fathers and fishermen about most kids running away from or screaming in horror at their first catch. Leah is not most kids.

As I worked the well-placed hook from the corner of the sunfish's mouth, Leah asked, "Hold it?"

I grinned. "Of course



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The author and his daughter head to the homestead pond for their first annual Father's Day fishing trip.
PHOTO BY AUTHOR'S WIFE, LAURA

sweetheart!" I placed the glistening gem in her wet, cupped hands. Looking down at her hands, she was like a miner who'd found a gold nugget in her pan.

Leah, not content with merely a hold, inquired, "Pet it?"

"Yep. It's all yours little fishing buddy. Good job!"

As curious as I have ever seen my girl, Leah inspected her first fish. When the vivid colors of gold had been properly saved to memory, my little girl thoughtfully returned her catch back to its home.

Pleased with her immediate success, my daughter thought it a good time to take a break from the fishing. I am not sure whether it was a harmless attempt to skip a stone or a downright, blatant throw, but Leah discovered how fun it was to spoil the fishing directly in front of her father.

When Leah had drowned the entire local population of

rocks, she cuddled up and sifted through my pockets. Little Leah was delighted when her tiny fingers stumbled across my cell phone. Instantly, she rested the phone along her round face and pretended to call the family to tell them about the good fishing.

Though distracted while tying a hopper imitation to the tip of her line in hopes of fooling a bass, I thought her gesture was a tender, unforgettable moment. When I heard the distinct plop, it became just unforgettable. I couldn't be mad. Leah, unbeknownst to her, had a free pass for the whole day. Being the Father's Day Leah had landed her first fish, my darling could have gotten away with anything.

In the following minutes, my new fishing buddy had one hefty taker on the grasshopper. However, her first trip, like so many of mine, included the big one getting away.

Like a coach, I pulled the hopper and substituted it for the proven all-star nymph. After the water calmed from bass and boulders, eventually reaching a farm pond's shade of clear, Leah was able to yank out another brilliantly gold sunfish.

Later in the evening, at a family Father's Day cookout, Leah happened to be boasting and telling stories. Uncle Ryan asked the first question so often casted to anglers. "Did ya' catch anything?"

Leah, looking up at her uncle, spread her arms as wide as they would go (about three feet). As her wingspan conveyed such an exaggerated size, Leah eagerly shared, "Yeah, thousands!" A fishing lie is the only brand of dishonesty universally promoted by dads. A father couldn't have been more proud.

Following Leah's first trip, I retired the nymph. I affixed the small bead head nymph to my fishing hat, as any angler knows is a place of high honor. Though I let the fly forever forget water, I will not let the girl. I plan to make Father's Day an annual fishing tradition. I hope to see both my daughter and her fish grow. I will deeply enjoy the maturation from bluegill to bass and trout and from cane pole to spinning rod and fly rod. Whether fishing from bank or from boat, Leah and I will strengthen the special bond between father and daughter.

It may be true being a parent means more responsibility, extra work, and less fishing time. But much more importantly, becoming a father is one of life's greatest blessings. A dad's reservoir bursts with genuine laughter and floods with tenderness. All of my adventures and memories with Leah have filled the rivers flowing into my heart. Like June, these are the golden days. ☺

“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:

- Poor circulation won't allow debris to burn completely.
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- Drums are heavy to move.
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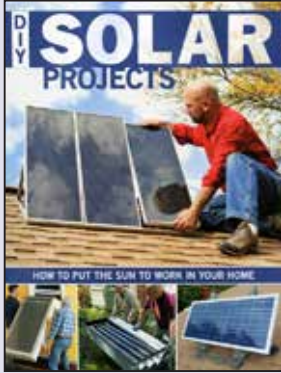
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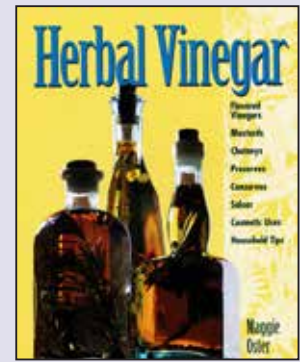
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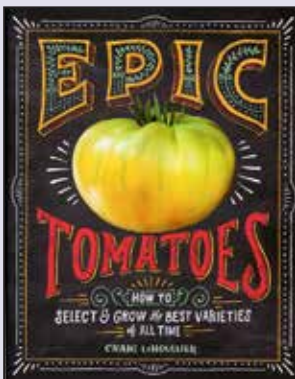
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EPIC TOMATOES

How To Select & Grow The Best Varieties Of All Time

By CRAIG LEHOULLIER



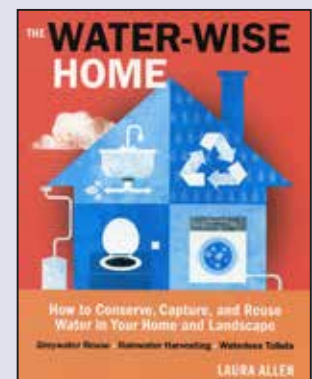
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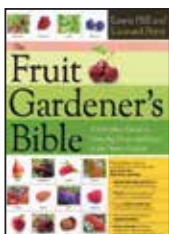
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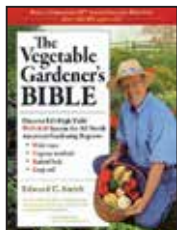
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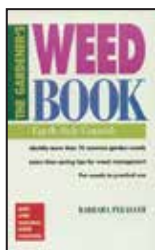


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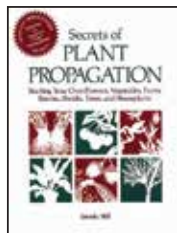


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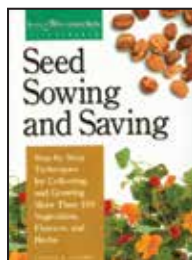


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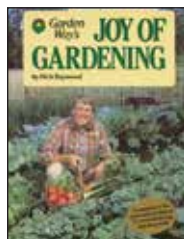


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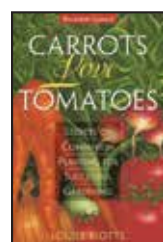


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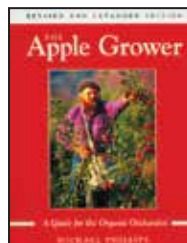


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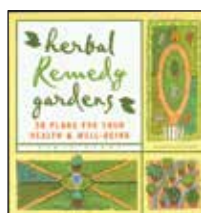


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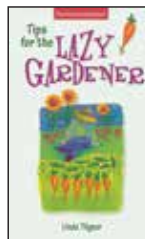


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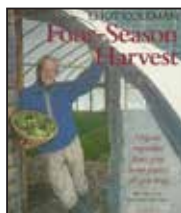


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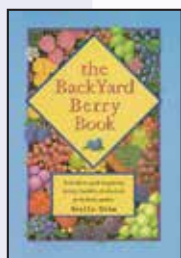
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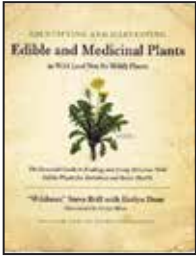
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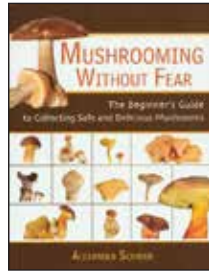
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for Late Spring and Early Summer of 2015

BY W. L. FELKER

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do blow,
The earth doth rest,
heaven move,
and fountains flow.
Nothing we see but
means our good,
As our delight, or as
our treasure.

GEORGE HERBERT

THE EPHEMERIS FOR MAY AND JUNE THE SUN'S PROGRESS

On May 21, the sun enters early summer sign of Gemini; it enters the middle summer sign of Cancer on June 21, summer solstice day, at 11:38 p.m.

THE PETAL-FALL MOON, THE HUMMINGBIRD MOON AND THE FIREFLY MOON

Hummingbirds follow the end of petal fall, announcing the full force of late spring. When you see hummingbirds at your feeder, then fledglings of larger birds like robins and grackles will be begging for food from their parents. Not long afterwards, fireflies glow in the dark.

MAY

- 3:** The Petal-Fall moon is full at 10:42 p.m.
- 11:** The moon enters its final quarter at 5:36 a.m.
- 14:** Today the moon is at perigee, its position closest to Earth.
- 17:** The Hummingbird Moon is new at 11:13 p.m.
- 25:** The moon enters its second quarter at 12:19 p.m.
- 26:** Today the moon is at apogee its position farthest from Earth.

JUNE

- 2:** The Hummingbird Moon is full at 11:19 a.m.
- 9:** The moon enters its final quarter at 10:42 a.m.
- 10:** Perigee (the moon's

position closest to Earth)

- 16:** The Firefly Moon is new at 9:05 a.m.
- 23:** Apogee (the moon's position farthest from Earth)
- 24:** The moon enters its second quarter at 6:03 a.m.

THE STARS

The Big Dipper has started to rotate to the west after midnight, freecasting chigger and Japanese beetle time. To the east of the North Star, the house-shaped constellation of Cepheus spins slowly around to the center of the southern sky; when it is almost overhead, gardens will be full of bright mums.

THE SHOOTING STARS

May 5-6: The Eta Aquarid meteor shower falls near Aquarius.

June 14 - 18: The Lyrid meteor shower takes place in and around Lyra, right in the center of the sky.

THE PLANETS

Venus is the evening star in the far west throughout late spring and early summer. Jupiter pursues Venus a little higher in the sky. Rising in the middle of the night, Saturn arrives due south near dawn. Mars is not visible until August.

A CALENDAR OF HOLIDAYS AND SPECIAL OCCASIONS FOR HOMESTEADERS

May 25: Memorial Day

June 17, 2015: Ramadan: Prepare

to advertise to the Halal market for the close of Ramadan on July 17.

June 21, 2015: Father's Day

THE ALMANACK DAYBOOK MAY

1. Weather systems typically cross the Mississippi River near these dates: May 2, 7, 12, 15, 21, 24 & 29.
2. Soil temperatures average in the 50s by today in all but the northernmost states.
3. Full moon today increases the chances for a late freeze.
4. In the Southwest, the peak of the spring wildflower bloom has passed.
5. Spring wheat is often all planted in the North, and the oats crop is in the ground between Denver and New York.
6. Flea beetles eat the corn. Bagworms attack the wheat.
7. Potatoes and commercial tomatoes and pickles have all been set out along the Great Lakes.
8. The period of May 8th through 14th historically brings more storms to the nation than any other period except the days between the 17th and 24th.
9. Winter wheat is gold below the Mason-Dixon Line. Blueberries are setting fruit in the Northeast.
10. Armyworms and corn borers are at work when thistles bud and the first strawberries redden in the garden.
11. Since the moon may exert less influence on animal behavior

when it comes into its 2nd and 4th quarters, one might perform routine maintenance on livestock and pets today or about May 25.

12. Lunar lore suggests that the waning moon is best for planting all the rest of your crops that will produce fruit below the ground. for weeding and for mulching.
13. Flea beetles come feeding in the vegetable garden when white clover blooms in the pasture. Flea time begins for pets, a sign that insect activity is nearing the economic threshold on the farm.
14. Lunar perigee today will increase the power of the mid-May cold front, making frost more likely above the Ohio Valley.
15. Under the waning moon, hunt potato leafhoppers, cucumber beetles, mites, bean-leaf beetles, lice, ticks, screw-worms and fly maggots.
16. Pollen from grasses reaches its peak in the central portions of the United States.
17. New moon today and lunar perigee tomorrow increase the likelihood of frost in the North, turbulent weather across the South and Great Plains.
18. In the western states, new burrows of prairie dogs may cause problems in your fields and pastures.
19. Plant every remaining seed you have (for plants that produce their fruit above the ground) as the moon waxes between now and the first week of June. Actually, plant all the other seeds, too! The spring is getting well along!
20. Mulberries and wild grapes flower in the North, set fruit in the South.
21. The moon's final phase is efficacious for worming and spraying for external parasites,
22. Flies are bothering the livestock in northern states. They've been enjoying the southern animals for a month or more!
23. By today, winter wheat could be at least a foot high, tall enough to ripple in the wind, across the central states.
24. The front that arrives near this date is usually the last frost-bearing front to gardens in the northern tier of states.



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25. By this time of year, slugs are usually roaming every damp garden.
26. Late spring ends and early summer begins as May comes to a close.
27. Pickle planting is completed throughout the Lower Midwest by now, and framers are harvesting zucchini and squash.
28. Shrimp fishing along the Gulf of Mexico ordinarily picks up now.
29. Blueberries are setting fruit in the Northeast.
30. It's pruning time, after flowering, for forsythia, quince, mock orange, and lilac.
31. The earliest corn is six to twelve inches tall, soybeans three to four above the 40th Parallel.

JUNE

32. Weather systems normally cross the Mississippi River close to these dates: June 2, 6, 10, 15, 23 & 29.
33. The first cool front of June can bring a light freeze along the Canadian border and at higher elevations.
34. Most eastern tent caterpillars have left the nest by today. Catch them while you can.
35. Spray for potato leafhoppers in the alfalfa, cucumber beetles in the vines, corn borers in the corn, mites in the roses.
36. Mulberry season has begun for both the red and white varieties, and it often lasts until the end of early summer.
37. Strawberries are thinning in the southern half of the nation as black raspberries start their season in the Midwest. The darkening of the golden winter wheat measures the steady advance of early summer up toward the Great Lakes.
38. Cherries are ripe enough for pie in the Ohio Valley, and their season lasts through the end of the month.
39. Fertilize asparagus and rhubarb as their seasons end.
40. The first generation of sod webworms is usually born near this date.
41. The sunniest June days usually occur between now and the 26th, and the first major heat wave often

- develops across the central states.
42. Blackberries are in full bloom in the Northwest at the same time that the canola and winter wheat crops are about ready to be harvested in the Midwest.
43. Plan to put in the last of the pickles, corn, soybeans, and hot-weather vegetables (like tomatoes, squash, eggplant and peppers) during one of the most propitious late-lunar planting times of the year under the upcoming new moon.
44. Six to eight leaves have usually emerged on the field corn in Pennsylvania. Strawberries are about half harvested in Illinois, but that season is just beginning along the Canadian border.
45. Plan to put in the last of the pickles, corn, soybeans, and hot-weather vegetables (like tomatoes, squash, eggplant and peppers) under the upcoming new moon.
46. The high noon of the year has arrived along the 40th Parallel, marked by the opening of black raspberry season.
47. Today's new moon strengthens the mid-June cool front.
48. Prepare for mold in the hay stall in the feed storage area when humidity levels rise after the Corn-Tassel Rains move in.
49. Leafhoppers become more active and more crickets sing as locust trees flower and snapping turtles lay their eggs.
50. Consider expanding your pasture acreage. Parasites are often fewer in livestock when animals have more land on which to graze and browse.
51. Begin the winter wheat harvest and for complete the first cut of alfalfa along the 40th Parallel.
52. Pollen from grasses reaches its peak in the central portions of the United States.
53. The first woolly bear caterpillars, harbingers of winter, cross the road.
54. Watch for the start of sweet-corn-tassel season.
55. Leafhoppers and Japanese beetles are reaching the eco-

- nomical threshold on the farm.
56. Blackberries have typically set fruit or are setting fruit well up into northern states.
57. Middle summer typically begins near this date and lasts into the second week of August.
58. June's berries are disappearing; black raspberries decline quickly and the best mulberries have fallen throughout warmer states.
59. Fieldcorn starts tasseling in the nation's midsection.
60. The oats ripens and the first tier of soybeans blooms.
61. The final weather system of the month is almost always 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

Best hunting and fishing should occur with the moon above the earth. The second-best time occurs with the moon below the earth.

**DATE: ABOVE; BELOW
MAY**

- 1 - 3: Evenings; Mornings
- 4 - 10: Midnight to Dawn; Afternoons
- 11 - 16: Mornings; Evenings
- 17 - 24: Afternoons; Midnight to Dawn
- 25 - 31: Evenings; Mornings

JUNE

- 1: Evenings; Mornings
- 2 - 8: Midnight to Dawn; Afternoons
- 9 - 15: Mornings; Evenings
- 16 - 23: Afternoons; Midnight to Dawn
- 24 - 31: Evenings; Mornings

WINNER OF THE MARCH-APRIL SCKRAMBLER SWEEPSTAKES

A record number of 173 readers solved the last puzzle, and a prize of \$5 was promised to the 2nd, 22nd and 62nd persons persons to return the correct unscrambled words. The 2nd was Carol Stanley of Marlow OK; the 22nd was Rosa Robertson of Fredricktown, OH; the

62nd was Leonard Back of Tolland, CT. Carol Clingman of Kettering, OH didn't win (although she solved the puzzle), but she added a note saying that she finished this Sckrambler in "two minutes flat."

**ANSWERS TO THE MARCH
- APRIL SCKRAMBLER**

- | | |
|---------------|---------------|
| ORULF | FLOUR |
| OAOEPTTS | POTATOES |
| TUBRET | BUTTER |
| GSUAR | SUGAR |
| TSLA | SALT |
| EEPPPR | PEPPER |
| OTSRARC | CARROTS |
| SIONNO | ONIONS |
| KMIL | MILK |
| READB | BREAD |
| GNBKIA WOPRED | BAKING POWDER |
| FEFECO | COFFEE |
| ATE | TEA |
| IINSRSA | RAISINS |
| TUNEAP RETTUB | PEANUT BUTTER |
| AYTES | YEAST |
| CEIR | RICE |
| AASPT | PASTA |
| HORSTENGNI | SHORTENING |
| OPUS | SOUP |

**THE MAY - JUNE SCKRAMBLER:
BASIC CLOTHES
HOW MANY OF THESE
THINGS DO YOU WEAR?**

- | | |
|-----------|-----------|
| NATPS | REAWDEUNR |
| TISHR | RRSNGIAE |
| HOESS | CATJKE |
| ACOT | GRIN |
| KITRS | SESRD |
| GOISSTNCK | TOOBS |
| VOERLASL | CAWTH |
| KCALCENE | DAMLE |
| LEVOGS | NSDLSEA |
| TEBL | HTA |

If you are the 2nd, 52nd, 92nd or 172nd person to return your correct Sckrambler solutions by my deadline of April 25, 2015 to Poor Will, P.O. Box 431, Yellow Springs, OH 45387, you will win \$5.00. If you happen to find a typo or misspelling, you may simply skip that word without penalty—and you will receive a 50-cent bonus if you identify the mistake and win.

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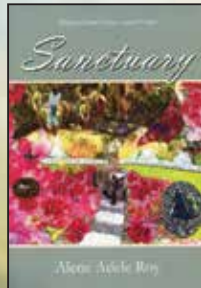
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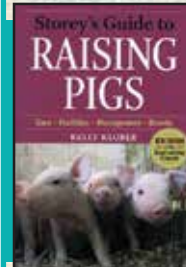
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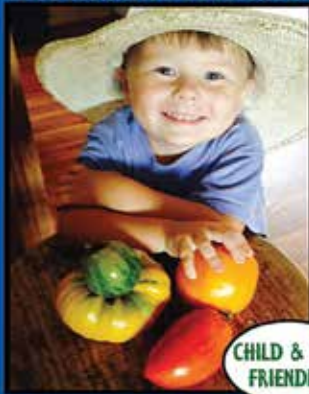
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