# Tenhessee CINNESTIONS

SUMMER 2022 │ CUSTOMER FOCUSED 📈 COMMUNITY DRIVEN

# Shining a Light on Solar

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ALSO Hidden Dangers
Under the Surface

Why We Need Bees





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#### Tennessee CONNECTIONS

Summer 2022 · Volume 1, No. 4

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PUR CEO Michael Shepard SVP OF CONTENT Leon Espinoza EDITORIAL DIRECTOR Mike Teegarden, CCC SENIOR EDITOR Pam Blair, CCC

TENNESSEE CONNECTIONS EDITOR
Chasity Anderson, CCC

EDITORIAL TEAM

Jennifer Paton, CCC; Brandon Pomrenke, CCC; Victoria Hampton; David Herder

DESIGNER Jenn Hall

PUBLICATIONS PRODUCTION MANAGER
Elizabeth Beatty

PUBLICATIONS COORDINATOR
Alvssa McDougle

#### TO CONTACT TENNESSEE CONNECTIONS

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#### Advertising Inquiries:

Email displayads@pur.coop.

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### **Stay Away From Power Lines**

Can't wait for the professional fireworks display—the one local firefighters supervise so nobody gets hurt? You are taking a risk by lighting your own.

Even legal fireworks can be dangerous. According to the U.S. Fire Administration, Fourth of July revelers report 9,300 fireworks-related injuries a year. Firecrackers are responsible for 1,600 of those. Next worst are bottle rockets and sparklers, which burn at about 2,000 degrees.

If you put on your own backyard show, stay away from power lines. Light fireworks in open areas where you cannot see any power lines. If your fireworks get tangled in an overhead wire or create a spark on one, call 911 and your electric utility immediately. Do not try to solve the problem yourself.

Here are additional fireworks safety tips from the U.S. Consumer Product Safety Commission:

- Keep a bucket of water nearby in case of fire.
- Children should be spectators, not participants, in the show. Never give children fireworks or sparklers.
- Read and carefully follow directions and warning labels. Most injuries result from improper use.
- Keep spectators at least 20 feet away and not downwind from where fireworks will be set off.
- Light fireworks only on a smooth, flat surface away from all flammable materials, including dry leaves.
- Never try to relight malfunctioning fireworks.



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## Shining a Light on Solar

Tennessee Valley Authority and its utility partners are working to build an energy system powered by cleaner, more flexible energy

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# BEAT THE HEAT THIS SUMMER Summer in the South can get hot.

For a few months, energy use increases while air conditioners work hard to cool our homes. CDE Lightband is here to help with the following easy ways to save energy and dollars:

- **1. CONTROL YOUR THERMOSTAT.** Keep your thermostat set as high as comfortably possible in the summer: 75 F when you are at home and 78 F while away or asleep.
- 2. **USE BLINDS.** Keep blinds closed during daylight hours, especially on the south side of your home. This is particularly helpful if you have south-facing windows in the same room as your thermostat.
- **3. ADJUST CEILING FANS.** In the summer, set them to turn toward the high side of the blades—counterclockwise for most fans—and keep them on a low setting. Moving air tends to feel 3 degrees cooler than stagnant air, regardless of the air temperature.
- CHANGE AIR FILTERS. This makes it easier for your heating, ventilation and air conditioning system to circulate air.
- **5. MAINTAIN YOUR HVAC.** Schedule service every six months—once before winter and once before summer. Check out energyright.com for a list of qualified contractors.
- **6. WEATHERIZE YOUR HOME.** Fix or replace faulty weatherstripping around doors and windows. If you can see light around your doors, you are wasting energy.

- CHECK YOUR INSULATION. Ensure your home's attic and crawl space are properly insulated. The U.S. Department of Energy's recommended insulation levels can be found at energy.gov.
- **8. UPGRADE TO LEDS.** Consider replacing existing incandescent and fluorescent lighting with quality LED bulbs for year-round savings.
- MAKE YOUR HOME SMARTER. Install a smart-home thermostat to save money by automatically adjusting temperature settings when you are away from home. Register to win one by signing up for Power Partners. See details below.
- 10. MONITOR DEVICE USE. Most electricity used in homes is for HVAC systems, water heaters and other major appliances. However, electronic devices such as computers and video game consoles add up—especially when they are being used more while children are home from school. Smart-home plugs can allow you to monitor how many hours these devices are used and the amount of power they consume.
- **11. WEAR COOLER CLOTHES.** If you turn up your thermostat a few degrees and put on cooler clothing, you can be comfortable and save money.

If you are doing all these things and want to increase your energy efficiency even more, CDE Lightband can help. Contact our power partners for help with everything from energy audits to solar panel calculations.



#### **BE A POWER PARTNER**

Sign up to partner with CDE Lightband and use electric power efficiently. Text PARTNERS to 85700. To qualify, you must text from a number associated with your CDE Lightband account. You will receive a maximum of five messages per month. Message and data rates may apply. Text "STOP" at any time to cancel. ■



#### The Best Grilled Pork Tenderloin in the World

By John Jackson, CDE Lightband energy services manager

- 1.5-pound pork tenderloin (make sure it is the tenderloin, not just a pork loin)
- 8 ounces Newman's Own Italian dressing

Trim the tenderloin of any excess fat, but do not "skin" it. Place in a large zip-close bag with the Italian dressing. Place in the fridge for one day, no more than two.

Before turning on the grill, take the tenderloin out of the fridge to come to room temperature.

I like to use an infrared gas grill due to its even cooking method. Turn the grill to high until it reaches 425 to 450 F, then turn it down to mediumhigh right before putting on the tenderloin.

Cook on four sides for around three minutes.

per side, or until the internal temperature is 140 F. When the temperature is reached, take the meat off the grill. Let rest for 10 minutes before slicing.

I like to serve this with grilled asparagus, summer squash and zucchini alongside mashed potatoes. Serves 4

# Shining a Light on S 0 L A R

By Pam Blair

# ADMIT.

Tennessee Valley Authority and the local utilities that provide your electricity have grander thoughts. They think of the energy system of the future.

Along with its utility partners, TVA is working to build an energy system powered by cleaner, more flexible energy.

When you think of solar energy, visions of a sunny day at your favorite beach or lake pop into your head.

Solar will play a big role. By 2035, TVA plans to add 10,000 megawatts of solar, with 5,000 MW by 2030.

TVA is already partway there, having committed to more than 2,400 MW of solar. It also created a flexible generation option that allows local power companies

to generate renewable power to meet the needs of their businesses and residential customers.

Dickson Electric System was an early adopter of the TVA partnership agreement that allowed for up to 5% of the DES power supply to be self-generated.

Meta's data center hub in northwest Huntsville is the primary customer of solar power generated from nearly 500,000 panels on 1,000 acres near unincorporated Elora, off U.S. Highway 64 in Lincoin County, PHOTO COURTESY OF NEXTERA ENERGY RESOURCES

DES is partnering with one of the country's major solar producers—with ties to the community—on a project that will have the capacity to generate 10 MW of renewable energy. The project will provide clean, renewable electric power with enough capacity to power more than 2,000 homes.

"We are excited to have the opportunity

to purchase solar power that reduces our dependency on fossil fuels, reduces carbon emissions and reduces our purchased power cost," says DES General Manager Darrell Gillespie. "These savings will be passed along to our customers and allow us to maintain some of the

lowest electric rates in Middle Tennessee."

CDE Lightband has partnered with Tennessee-based solar energy developer Silicon Ranch to bring Solarband—the first utility-scale renewable energy project—to Clarksville.

Silicon Ranch will build, own and operate solar arrays with a combined capacity of up to 15 MW. The project is expected to make more than 26 million

kilowatt-hours of renewable energy available to Clarksville's electric grid each year—enough to power about 1,800 homes, or about 56% of Clarksville's government buildings and facilities, including streetlighting.

That equates to approximately 2% of the electricity used by CDE Lightband customers each year.

This project is a win for CDE Lightband, our customers and our community.

— Brian Taylor, CDE Lightband General Manager

"Our solar project is the first step in showing our community that we are a leader in protecting our environment and doing our part by providing a carbon-free source of electricity," says CDE Lightband General Manager Brian Taylor. "This project is a win for CDE Lightband, our customers and our community."

The Elora Solar Farm—the largest operating solar farm in Tennessee at 150

MW—started generating this year. It is TVA's second Green Invest project, which is part of the TVA Green program.

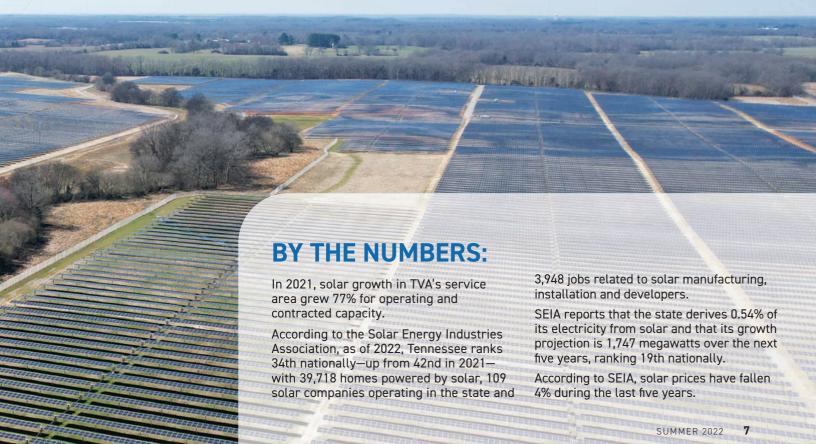
Through Green Invest, TVA's utilityscale solar program has attracted top-tier companies, such as Facebook, Google, General Motors, Vanderbilt University, Metro Government of Nashville, Jack Daniels and Knoxville Utilities Board.

A unique public/private partnership structure and competitive bid process enable affordable solar growth without shifting costs to nonparticipants.

Since 2018, TVA has committed nearly \$3 billion to solar investments.

Additional Green Invest utility-scale solar projects are contracted and in development in Tennessee, totaling more than 1,000 MW.

TVA's solar initiatives offer a bright future. They minimize the collective impact on the environment, attract businesses and new jobs to the valley, and move the region closer to providing clean energy that is also reliable and low-cost.



### **HOW DO I CHOOSE A QUALIFIED SOLAR INSTALLER?**



Are you considering installing solar panels? This guide will help you select a qualified and credible company.



#### RESEARCH

- Get quotes from multiple installers to make sure you are getting a good price.
- Read the terms of the proposal closely and ask questions if you don't understand the process or the contract isn't clear.

#### **EXPERIENCE**

- · Ask the installer for references from previous projects and call them to learn more about the installer.
- Look at customer reviews through services like the Better Business Bureau to make sure the installer has a good track record.

#### **Common business licenses include:**



General contracting, electrician, home improvement or home performance.



 Check that the installer is up-to-date with business and insurance licenses as required by state and local governments.



#### **EXPERTISE**

 Confirm the installer has a Solar PV Installation **Professional Certification from the North American Board of Certified Energy Practitioners.** 

This certification is the gold standard for the industry.



### IS SOLAR RIGHT FOR YOU?

Explore TVA's Solar Calculator at edt.tva.gov.



# Solar Energy By Pam Blair

What may have seemed improbable decades ago is becoming a reality: Use of solar energy is becoming more widespread and more affordable. In 1975, the cost to produce a single watt of electricity from solar cells and tube-type collectors was \$22. Today, it averages less than \$3.

Collecting and using solar energy is nothing new. In the 1830s, British astronomer John Herschel used a solar oven to cook food during an expedition to Africa.

According to the U.S. Department of Energy, the amount of sunlight that strikes the earth's surface in an hour and a half is enough to handle the entire world's energy consumption for a year.

However, the sunlight must be trapped and concentrated to be used.

One way of capturing the power of the sun is through photovoltaic panels. The name comes from converting light (photons) to electricity (voltage).

This was first exploited in 1954 by scientists at Bell Laboratories, who created a working solar cell made from silicon. It generated an electric current when exposed to sunlight.

Solar cells gained widespread public exposure due to the country's space vehicles and satellites, which were powered by long, narrow panels of solar cells.

People now collect and convert solar radiation to heat water in homes, buildings and swimming pools, and to heat homes, greenhouses and fluids for solar thermal power plants.

In the last decade, solar has experienced an average annual growth rate of 33%, according to the Solar Energy Industries Association. Thanks to the federal solar investment tax credit, rapidly

declining costs, and increased demand across private and public sectors for clean electricity, there is more than 121 GW of solar capacity installed nationwide—enough to power 23.3 million homes.

#### The Pros and Cons of Solar Energy

Photovoltaic devices, or solar cells, change sunlight directly into electricity.

Small cells can power calculators, watches and other small electronic devices. Arrangements of many cells within PV panels and multiple panels in arrays can produce electricity for an entire house. Some PV power plants have large arrays covering acres to produce electricity for thousands of homes.

Solar energy has two main benefits:

- Solar energy systems do not produce air pollutants or carbon dioxide.
- Solar energy systems on buildings have minimal effects on the environment. Solar energy also has limitations:
- The amount of sunlight that arrives at the earth's surface is not constant. It varies depending on location, time of day, season of the year and weather conditions.
- The amount of sunlight reaching a square foot of the earth's surface is relatively small, so a large area is needed to collect a useful amount of energy.

#### **Location, Environment and Equipment**

The cost of solar energy is about more than the price tag on the panels and their rated power output. One must consider location, orientation of the roof, lifespan of the panels and annual production.

Solar panels are rated on efficiency and power output under laboratory rather than real-life conditions. The amount of

electricity produced depends on characteristics of available light and performance attributes of the cell. In general, solar radiation intensity is greatest when the sun is at its highest position in the sky—at solar noon—on clear, cloudless days.

Solar power generation is most effective in places with a lot of direct sunlight throughout the year. Low-latitude, desert areas are ideal, such as Arizona, Southern California and Nevada. However, most areas in the U.S. are sunny enough to use solar energy to some extent.

Heat, dirt and shade reduce efficiency. Conventional rooftop solar modules lose as much as 30% of their electricity output on hot summer days. Panels also lose about 10% of energy yield when dirty.

Factoring the effect of shadows is more complicated. When a faint cloud passes over a module, power levels are reduced. However, sometimes light is completely or regularly blocked, which can cause "hot spots" that damage the module.

An important property of PV semiconductors is bandgap, which indicates what wavelengths of light the material can absorb and convert to electrical energy. If the bandgap matches the wavelengths of light shining on the PV cell, that cell can efficiently use all the available energy.

Not all the sunlight that reaches a PV cell is converted into electricity. In fact, most of it is lost. According to DOE, the maximum theoretical efficiency level for a silicon solar cell is about 32%—and the best panels for commercial use have actual efficiencies around 18% to 22%.

Researchers are studying how to improve efficiency and energy yield while keeping production costs low.

# Hidden Dangers Under the

While enjoying the sun and surf, stay mindful of electrical safety. Electric shock drowning is a real risk.

Despite being categorized as leisure activities, swimming and boating can quickly become dangerous.

While water-safety behaviors such as wearing life jackets and maintaining safe boating speeds have become commonplace, a serious hazard is often overlooked: electric shock drowning. It occurs in fresh water when a typically low-level alternating current passes through the body, causing muscular paralysis and eventually leading to drowning.

"Although there are reported incidents every year, there is a lack of awareness about the dangers of electric shock drowning," says Electrical Safety Foundation International President Brett Brenner.

A 21-year-old Illinois man died in 2015 when touching a dock ladder at the Lake of the Ozarks in Missouri. Additionally, there were at least two fatalities in Kentucky in 2013, and a pair of deaths in both Missouri and Tennessee during the Fourth of July holiday in 2012.

Electric shock drowning deaths usually are recorded only as drowning because victims show no signs of burns.

While a lack of awareness persists about the dangers of electric shock drowning, positive strides are being taken to combat the problem.

In Tennessee, state legislators passed the Noah Dean and Nate Act in 2014—

a move to protect people from electric shock injuries and drowning

deaths near marinas and boat docks. The bill is named in memory of 10-year-old Noah Dean Winstead and 11-year-old Nate Lynam, who died from electrical injuries they suffered July 4, 2012, at a marina in Tennessee.

Jessica Winstead, Noah's mother, was the driving force behind the bill, crusading to prevent similar tragedies. An inspection following the tragic incident found the marina did not have groundfault circuit interrupters.

Under the Noah Dean and Nate Act, Tennessee marinas must install ground-fault protection, post notices about the danger of electrical leakage into waters surrounding a marina, and undergo a safety inspection by the state fire marshal's office every five years. The law went into effect in April 2015.

A similar law passed in West Virginia in 2013, three years after the death of 15-year-old Michael Cunningham. Changes to legislation were adopted in Arkansas in 2012 after several electrocutions near docks there and in surrounding states.

The 2011 National Electrical Code addresses the dangers in marinas and boatyards by requiring the main overcurrent protective device to be GFCI-protected. However, this only applies to installations and inspections, which are recommended annually but not enforced.

Protect yourself and your loved ones from the risk of electric shock drowning and common boat electrical hazards with these handy tips from ESFI:

- Don't allow yourself or anyone else to swim near docks.
- Avoid entering the water when launching or loading your boat.



- Maintain a distance of at least 10 feet between your boat and nearby power lines.
- If you feel a tingle while swimming, the water may be electrified. Get out as soon as possible, avoiding the use of metal objects, such as ladders.
- Have your boat's electrical system inspected by a certified marine electrician.
- Have GFCIs installed on your boat, and test them once a month.
- Consider having equipment leakage circuit interrupters installed on boats to protect nearby swimmers from potential electricity leakage.
- Only use shore or marine power cords, plugs, receptacles and extension cords that have been tested by Underwriters Laboratories, Canadian Standards Association or Intertek.
- · Never use cords that are frayed or damaged, or that have had the prongs removed or altered.
- Never stand or swim in water when turning off electrical devices or switches.

#### **Pool Electrical Safety**

Many people want to escape spring and summer heat with a dip in a cool, sparkling swimming pool. Enjoy your swim, but don't let electrical safety slip your mind.

Any situation where electricity is used near water is a shock hazard. You should have GFCI protection on underwater lighting circuits and lighting around pools, hot tubs and spas.

Safe Electricity offers the following tips to stay safe in or around swimming pools:

- Build pools and decks at least 5 feet from all underground power lines and at least 25 feet away from overhead power lines.
- Do not put electric appliances within 10 feet of a swimming pool. When practical, use battery-operated appliances near swimming pools.
- Any electric outlets within 20 feet of a pool should have GFCIs.
- If a swimmer is in the water and feels electricity or appears to be shocked, don't dive in. You could be shocked, too. Turn off the power and use a fiberglass shepherd's hook to pull the victim out of the water.
- Don't swim during a thunderstorm.
- When you leave the pool, do not change the radio station or touch any electrical appliances until you are dry. Never touch any electrical appliances when you are wet or standing in water.
- If children want to play with sprinklers or hoses, set them up far from appliances. ■

#### Outdoor **Electrical Safety**

The arrival of warmer weather signals the start of outdoor pursuits—everything from flying a kite to cutting the grass. While enjoying yourself outside, make sure you follow electrical safety

- When overhead power lines are nearby, use wooden or fiberglass ladders—not metal. Look before you
- ▶ Before digging, call 811 to make sure you won't contact underground power lines or any other utilities.
- Never fly kites, model airplanes or metallic balloons near power lines or in stormy weather. Use only dry string. Avoid using metal or wire on kites. If your kite or balloon gets caught on power lines, don't try to untangle it. Call your utility.
- Inspect power tools before each use for frayed cords, broken plugs, and cracked or broken housings. Make sure tools or extension cords used outdoors are marked for that use.
- Never remove the third prong of a three-pronged plug. If possible, convert two-pronged outlets to fit three-pronged plugs, using an adapter with a ground tab.
- Don't try to repair electric products yourself.
- Keep outdoor outlets and electrical products covered and dry between uses. Never use electrically operated power tools in the rain or in wet conditions. Even morning dew can turn electricity into a serious shock hazard.
- Know the location of circuit breakers or fuses. Ensure you can easily reach them.
- Put a ground-fault circuit interrupter between your electric power source and your electric product.
- Don't plant tall-growing trees under lines. If a tree has lines running through it, don't climb it.
- Teach children to stay away from utility substation fences and padmounted transformers.
- Stay away from downed power lines.

## Celebrate Jummer With Fresh Flavors

It's not an exaggeration to say fresh tomatoes aren't worth buying for much of the year. Out-of-season tomatoes are bland, mealy and watery, which is why canned tomatoes are recommended for soups and stews during colder months.

But come summer, it's a different story. It's that time of year when beautiful plump tomatoes appear, boasting a rainbow of colors and myriad shapes—from purple to yellow,

orange, green and red; bell-shaped, round, plum-shaped and heart-shaped, too.



#### **GOAT CHEESE TOMATO PIE**

There are many versions of this popular pie. This one is almost perfect. Tapioca helps thicken the filling, parbaking makes for a sturdy crust, and goat cheese adds a wonderful punch.

1 single pie crust, homemade or store-bought (see note)

1 cup shredded cheddar cheese

1 cup shredded mozzarella cheese

1 cup mayonnaise

2 tablespoons tapioca starch

5 to 6 tomatoes

Salt and pepper, to taste

5 to 6 leaves fresh basil, thinly sliced 4 to 6 ounces goat cheese, crumbled

Heat oven to 350 F.

Line the bottom of the crust with foil. Place pie weights, beans or pennies on top to keep the crust from puffing up. Bake crust until it is light golden brown, about

15 minutes.

With juicy tomatoes, this can be a pretty wet pie, so crisping up the bottom crust is a must.

While the pie crust cools, roughly chop the tomatoes. Chopping rather than slicing makes

> the pie easier to cut once it is fully baked although slicing makes a prettier pie. Sprinkle half of the tomatoes around the bottom of the crust. Sprinkle three to four of the basil leaves. Sprinkle with salt and pepper. Add the goat cheese.

Cover the goat cheese with remaining tomatoes and more basil. Sprinkle with a little more salt and pepper.

To make the cheese filling, mix the cheddar and mozzarella with mayonnaise and tapioca starch. If you have any basil left, add a few thin-sliced leaves into the mixture. Spread the filling over the pie.

Bake on the oven's middle rack for 30 to 45 minutes, or until the top is a light golden brown.

**NOTE:** If making your own pie crust, try adding ½ cup Parmesan cheese and ½ cup cheddar cheese to the dough.

## IN THE KITCHEN

#### **CHARRED CHERRY TOMATO APPETIZER**

Cherry tomatoes take on an entirely different flavor profile when charred and drizzled with honey.

2 cups cherry tomatoes

2 tablespoons extra-virgin olive oil

2 garlic cloves, minced

½ teaspoon cumin seeds

½ teaspoon honey

1 cup whole-milk Greek yogurt

Zest of 1 lemon, divided

Leaves of 5 thyme sprigs, plus more for garnish

Pinch of red pepper flakes

Kosher salt

Freshly ground black pepper

Fresh mint leaves

Crusty French or ciabatta bread

Heat oven to 425 F.

In a medium bowl, combine the tomatoes, olive oil, garlic, cumin, honey, thyme, half the lemon zest, about 1/4 teaspoon salt and several grinds of pepper. Transfer to a small, rimmed baking dish. Roast for 18 minutes. Turn the oven to broil. Broil for 2 minutes, or until the tomatoes begin to char on top.

In a small bowl, mix the yogurt with the remaining lemon zest and ¼ teaspoon salt.

Spread the yogurt in a thin layer on a serving plate and top with the tomatoes. Sprinkle with red pepper flakes. Garnish with fresh thyme and mint leaves. Serve with crusty bread.



#### STRAWBERRY-TOMATO CAPRESE SALAD

Caprese salad gets a boost with the marriage of a surprising couple: fresh summer tomatoes and strawberries.

¼ cup balsamic vinegar

1 cup sliced strawberries

1 cup halved cherry tomatoes

1 cup halved mini mozzarella balls

1 ripe avocado, pitted and diced

⅓ cup pecans, toasted

1/3 cup loosely packed basil, torn

Extra-virgin olive oil

Kosher salt

Freshly ground black pepper

In a small saucepan, bring the balsamic vinegar to a strong simmer over medium heat. Stir, then reduce heat to low. Simmer until the vinegar has thickened and reduced by half, about 8 to 10 minutes. This will make a glaze. Set aside to cool.

Place the strawberries, cherry tomatoes, mozzarella, avocado, pecans and basil in a shallow bowl or on a platter. Drizzle with olive oil. Season generously with salt and pepper. Gently toss. Drizzle with the balsamic glaze.

#### SUMMERTIME TOMATO PASTA

This feel-good dish explodes with the flavors of summer. Use multicolor rotini for a lively presentation.

1½ pounds ripe tomatoes

2 tablespoons olive oil

1 tablespoon fresh lemon juice

½ teaspoon salt

¼ teaspoon sugar

1 small garlic clove, minced

1/2 pound pasta, such as angel hair, spaghetti, rotini or penne

½ cup freshly grated Parmesan cheese

1/2 cup chopped fresh basil

Freshly ground black pepper, to taste

Loaf of crusty bread

Core about two-thirds of the tomatoes. Halve the remaining tomatoes. Rub the cut side against the large holes of a box grater placed in a large bowl, leaving the tomato pulp in the bowl and discarding the skins.

To the tomato pulp, add the chopped tomatoes, olive oil, lemon juice, salt, sugar, freshly ground black pepper and garlic.

Bring a large pot of salted water to a boil. Cook pasta just until al dente. Drain pasta, reserving about ½ cup of pasta water. Immediately return pasta to the pot. Pour in the tomato sauce. Mix well with about ¼ cup pasta water—use more to thin sauce, if needed. Cook over medium heat for 1 to 2 minutes, just long enough for the tomatoes to soften.

Remove from heat and toss with Parmesan and basil. Serve with crusty bread.

# Why We Need

By Robin Howard

A fear of bee stings usually starts in childhood. Stings are sudden, painful and dangerous for people with allergies, so it's no wonder that a run-in with a bee can leave a lasting impression.

Bees only sting when they are injured or threatened, and they die soon after. Bees don't want to sting you. Like any good relationship, the key to coexisting is respect.

#### If You Like Coffee, You Like Bees

Bees are responsible for pollinating some of the crops that produce the things we like best. If you like coffee, almonds, avocados, berries and apples, you can thank bees. Will we go extinct without them? No, but a planet full of cranky, noncaffeinated people isn't going to be much fun either.

Worldwide, 87 crops need pollinators such as bees, compared to 28 crops that can live without them. Without bees, we would be on a steady diet of potatoes, carrots, garlic, broccoli and brussels sprouts. Common—and some would say lifesaving—crops such as coffee would be so rare that the cost would put it out of reach for most of the population.

#### Types of Bees and Their Jobs

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Here is how our little black and gold friends do it: Plants produce offspring—more plants—by making seeds, which are made inside flowers. However, seeds can only be made when pollen is transferred between flowers of the same species.

Lucky for us, bees are messy eaters. When a bee visits a flower to eat, some pollen ends up on its legs and face. When it visits another flower of the same species, it pollinates that flower. Then the flower can reproduce and make seeds. Seeds turn into the fruits and nuts and coffee beans we love.

Without bees to pollinate plants, we would have flowers but no fruit. Without fruit, those plants eventually would become incredibly rare or disappear altogether.

Wild honey bees—the original inhabitants of North America—are the most common pollinators and are responsible for pollinating 90% of crops, such as blueberries, cherries and apples.

Managed bees are honey bees kept by commercial beekeepers. They frequently are loaned to farmers who need crops pollinated.

Fat, fuzzy bumblebees are vital for pollination because honey bees won't work in the rain or when it's cloudy.

#### Why Bees Are in Trouble

In the wild, bees need places to live—such as hollow trees—and food, such as wildflower meadows and other flowering plants. Overdevelopment means fewer trees and meadows, contributing to a global decline in bee populations.

Another major contributor to bee decline is the use of toxic pesticides, which bees eat as they pollinate contaminated plants.

Bees are also susceptible to disease and attacks from nonnative species.

#### **Living in Harmony With Bees**

If you would like to keep enjoying the fruits of bee labor, befriend the bees.

The first step in helping bees is overcoming the perception that bees are angry predators that want to hurt you. Like many of us, bees are peaceful creatures who just want to eat and look at flowers. When you see a bee, remember it's a nonaggressive friend who will leave you alone if you leave it alone.

the flower can reproduce and make seeds. Seeds turn into the fruits and nuts and coffee beans we love.

Wasps and hornets, on the other hand, are just jerks. You don't have to kill them, but you do want to take a wide berth.

# Bees

#### Some other tips:

- **\$\iiiit** If you have a nest or hive that must be removed, call a professional who uses nontoxic methods of removal.
- Avoid swarms, which occur when a new queen overthrows a queen bee, and the old queen takes hundreds of worker bees with her to a new nesting spot. The swarm isn't dangerous as long as you leave it alone.
- Reduce your risk of being stung by wearing shoes outside, checking your yard for bee nests before you start yardwork, removing food and trash that attract bees, and avoiding scented personal care products when going outside.

#### Bee Part of the Solution

You can help bees—and apples, nuts, berries, coffee and thus humanity—thrive by providing them with food, water and shelter or protecting the natural bee-friendly resources around you.

The most important thing you can do is plant a bee garden full of plants that have pollen and nectar. Even in a small space, honeysuckle, sunflowers, cosmos, coneflower, butterfly bush, bee balm and geraniums are some of the best bee-friendly candidates.

Flowering trees can feed thousands of bees and provide necessary shelter. Bees need water, too, so a shallow birdbath with fresh water is an essential part of a habitat. Bees can drown in too-deep water, so fill your birdbath with pebbles that break the surface and provide a dry place to land.

Most bees live alone instead of in a colony. You can make a home for solitary bees by buying or building a bee condo—a small box with hollow tubes of dried bamboo. Otherwise, leave part of your garden wild where they can safely build nests.

Even if you don't want to encourage bees to live in your habitat, don't use pesticides, fertilizers, herbicides or chemicals in your garden or around your home. Choose organic products or natural solutions for pest and insect control. It's OK if you don't want to encourage bees—especially if you have a dangerous allergy to stings—but you can still be a long-distance friend by not harming them.

Scientists estimate every third mouthful of food is brought to us by bees. We probably won't go extinct without them, but we would lose more than a third of our food supply, half of our oils and fibers and many medicines without our efficient little friends.

Thank a bee by building a bee-friendly habitat, leaving your garden or yard a little wild, and not using pesticides.

Remember, if we leave them alone, they won't just leave us alone—they will make us coffee. ■





#### TENNESSEE CONNECTIONS

## PLANNER

School's out. Sun's out. It's time to plan your summer vacation. Take in a Tennessee baseball game, explore historic, tucked away small towns, and enjoy the refreshing waterholes and shaded trails in state and national parks.



#### SUMNER

#### SUMNER FEST

Known as the city by the lake, Hendersonville hosts Sumner County's hot air balloon festival. Sanders Ferry Park—nestled on the shoreline of Old Hickory Lake—is the idyllic backdrop for a celebration filled with food, fun and nonstop entertainment as hot air balloons color the sky and provide breathtaking aerial views of the surroundings.

visitsumnertn.com/annualevent/ sumner-fest

#### **McMINNVILLE**

June 17-29

#### Main Street Live

Join the summer community party. Bring a chair and a friend, try some local fare at the Mini Food Truck Festival and listen to great music. Each week features a different band and music genre. Come early and explore downtown. Food trucks open at 6 p.m. The free concert begins at 7 p.m. Community announcements and a prize drawing are around 8 p.m. Register at the Main Street McMinnville tent.

www.mainstreetmcminnville.org

#### **BELL BUCKLE**

#### RC-MoonPie Festival

Bell Buckle Chamber of Commerce's annual RC-MoonPie Festival is wacky, old-fashioned fun for the entire family, starting with certified 10mile and 5K runs and continuing with contests, MoonPie games, a colorful parade, crowning of the festival king and queen, and ending with the grand finale: cutting of the world's largest MoonPie-free dessert for all! Enjoy three Southern treasures in one day: RC Cola, MoonPies and Bell Buckle, Tennessee.

www.bellbucklechamber.com

#### **OAK RIDGE**

June 18

#### Lavender Festival

The oldest lavender festival in the Southeast draws 14.000 visitors and more than 150 artisan vendors to Jackson Square, with the finest in handmade products, locally grown foods, children's activities, lively music and, of course, lavender.

jacksonsquarelavenderfestival.org

#### DICKSON

June 25

#### A Heart for Art

See works by local artists, as well as art from local schoolchildren and the senior citizens' art class. The event includes a health fair and is held in conjunction with the Dickson Downtown Summer Festival. There will be music and concessions throughout the day. The exhibition is from 9 a.m. to 2 p.m.

www.dicksonclinic.org

#### KODAK

June 25

#### TN Promise Volunteer Day

Seven Islands State Birding Park is looking for volunteers to help with invasive plant species removal. It is an excellent opportunity for students needing volunteer hours as part of the requirements for the TN Promise program. Volunteers will work alongside park staff at the end of Kelly Lane Greenway near the Maple Leaf Barn to cut and remove invasive plant species, including privet, autumn olive, honeysuckle, winter creeper, Virginia creeper and multiflora rose. Volunteers can bring their own hand tools and gloves for cutting and removing vegetation if they have them, along with water. Meet near the main parking lot gate at 9 a.m.

tnstateparks.com

#### **SMITHVILLE**

#### Fiddlers' Jamboree and Crafts Festival

Now in its 51st year, the free old-time Appalachian-style bluegrass and crafts festival has something for all ages, with more than 35 music and dance competitions, handmade crafts, and lots of food and fun.

www.smithvillejamboree.com



#### **CLINTON**

#### Independence Day Anvil Shoot Celebration

While most Americans celebrate Independence Day with fireworks, the Museum of Appalachia marks the occasion with an old-fashioned anvil shoot, using gunpowder to launch a 200-pound anvil hundreds of feet into the air. Anvil shoots were once a common way for pioneers to commemorate special occasions. The tradition is nearly obsolete, but the museum keeps this piece of history alive for a 21st-century audience.

www.museumofappalachia.org

#### **GATLINBURG**

#### July 4

#### Midnight Independence Day Parade

Gatlinburg kicks off the holiday at 12:01 a.m. with what National Geographic Traveler Magazine previously featured among 10 parades to see in the United States.

gatlinburg.com

#### **KINGSPORT** July 15-23

#### Fun Fest

The community festival features more than 80 events in more than 40 locations around the city, kicking off with a parade. It is followed by block parties, concerts, children's events, sporting events, hot air balloons and a fireworks finale.

funfest.net

#### Kentucky Lake Water Fun Run

Get lucky on Kentucky Lake at this annual event where participants play poker for prizes after traveling to area resorts to earn unique stamps.

paristnchamber.com

**JACKSON** 

#### July 31

#### 731 Day/Porchfest

Celebrate the people and the stories of Jackson with events all across town, highlighted by a massive water balloon fight and ending with live music in the Lambuth Area Neighborhood Association.

www.ourjacksonhome.com/731day

### August 3 and 17

#### Art in the Park-Clav Owls

Local artist Anna Whitworth will teach hand building skills and provide visual instruction for clay owl projects during a program at Henry Horton State Park. Registrants will combine coil building with pinch pots, and then texture, to create owl sculptures. This two-part program is recommended for those ages 12 and older. The first day will be instruction and creating artwork, which will be dried, kiln fired and ready for staining and sealing the second day. Both sessions begin at 6 p.m. The cost is \$30. All materials will be provided. Registration is required.

tnstateparks.com

#### August 28

#### Knox Asian Festival

Aiming to promote diverse cultures and celebrate Asian traditions and talents, this festival at Worlds Fair Park promotes peace, harmony, unity and healthy living. Each participating country/region showcases its unique music, dance, food, fashion, handicrafts and other products through a passport program.

www.knoxasianfestival.com

#### SPRINGVILLE

#### August 13

#### **Hummingbird Banding Event**

The Tennessee National Wildlife Refuge hosts this banding event at the visitor center. Guests will have up-close interaction with hummingbirds, be able to ask questions and assist in the release.

fws.gov/refuge/tennessee

#### Include Your **Upcoming Event**

Want to share a family-friendly event with the readers of Tennessee Connections? Please visit tinyurl.com/ TennesseeEvents to submit the details. Thank you.





#### **MURFREESBORO**

#### JUNETEENTH FESTIVAL

#### June 19

Celebrated at the historic Bradley Academy Museum and Cultural Center in Murfreesboro, Juneteenth commemorates the June 19, 1865, announcement of the abolition of slavery in the United States and, more generally, the emancipation of African American slaves throughout the former Confederacy of the southern United States. The festival features vendors, dance, music and food. It is open to all.

www.murfreesborotn.gov/2252/Juneteenth



ATRIUM PHOTO COURTESY-OF SARAH HAUSER MUSEUM PHOTO COURTESY OF THE BIRTHPLACE OF **COUNTRY MUSIC** 

#### What Is It?

Along the Tennessee-Virginia border in Bristol, learn about a launching pad for the country music industry at the Birthplace of Country Music Museum. Exhibits document the history of music in the region.

#### The 1927 **Bristol Sessions**

For a 10-day stretch in 1927, Ralph Peer—a producer for the Victor Talking Machine Co.-hosted recording sessions on the third floor of Taylor-Christian Hat and Glove Co. He was one of the first to record "hillbilly music" in local studios, rather than working in the big cities. The sessions-which featured the Carter Family, Jimmie Rodgers and more, have become known as the big bang for country music.

#### The Museum

While the Taylor-Christian Hat Co. building has come down- the 24,000 squarefoot Birthplace of Country Music Museum opened in 2014. The museum partners with the Smithsonian Institution, and features 10 permanent exhibits-including interactive ones--a performance theater and space for special exhibitions.

#### Radio Bristol

The Birthplace of Country Music organization also runs four radio stations: WBCM, broadcasting on 100.1 FM; Radio Bristol Americana; Radio Bristol Classic; and Radio Bristol Video. Live programs are recorded at the museum. On the second Thursday of every month, visitors can buy tickets to watch the live recording of Farm and Fun Time—a program that celebrates Appalachian music and culture.

#### More Info

The museum is open Tuesdays through Saturdays from 10 a.m. to 6 p.m. and Sundays from 1 to 5 p.m. Admission is \$13 for adults; \$11 for seniors, college students, military, children ages 6 to 17, and groups of more than 20; and free for children 5 and younger. To start planning your trip, visit birthplace ofcountrymusic.org.



The warm-season, perennial Bermuda grass grows in many lawns across Tennessee. Healthy Bermuda grass grows rapidly and provides a thick, traffic-tolerant turf from late spring through early fall.

Exact dates depend on where in Tennessee you live, but Bermuda grass typically goes dormant November through March, only breaking dormancy once temperatures begin to warm up. It is important to note that most Bermuda grass management practices are conducted May through July, which is different from how cool-season turfgrass is managed.

Whether you have an intensely or casually managed yard, there are several ways you can improve the overall quality and sustainability of your Bermuda grass lawn.

One of the most important steps a home lawn/garden enthusiast can take



Rylan Thompson is a Tennessee State University Agriculture and Natural Resources/4-H Extension agent in Knox County. He specializes in residential/ consumer horticulture and 4-H, and is the Knox County Master Gardener coordinator.

is to complete a soil test. Soil testing which should be done every three to five years—will give you a baseline on your soil.

Knowing the existing soil's quality, you can apply amendments in a more targeted and conscious way. A soil test is also beneficial if you rely on a lawn care company to maintain your yard, as it will allow you to determine if you are getting the best service for your money.

While your Bermuda grass is actively growing, it will need to be mowed to keep its growth under control. It is important to have sharp mower blades to provide a clean cut. When mower blades become dull, they create a jagged cut on the grass, increasing the susceptibility of fungal pathogens. Blade sharpening should be done at least once a year to keep the cut clean.

It is also important to set your mowing height correctly to the stand of grass you are cutting. Depending on the Bermuda grass variety, the ideal mowing height is usually between ¾ inches to more than 2 inches. You should mow frequently so you do not remove more than one-third of the aerial shoots at any one time.

Other maintenance practices to consider are dethatching and core aeration. Thatch is composed of dead and dying plant matter. While a thin layer of thatch can be beneficial, it can impede water and air movement into the soil if it gets too thick. When the thatch layer is ½-inch thick or more, it is time to consider dethatching.

Core aeration is a practice in which small plugs of soil are removed from a yard and left on the surface, which helps reduce compaction and improve airflow. These soil plugs can be broken up with a drag mat, mowing and/or irrigation, all of which help this soil move back into the thatch.

Both dethatching and core aeration should be done in May, June or July so the lawn can recover rapidly.

These are just a few of the many steps to a successful Bermuda grass yard. As you introduce more of these practices into your lawn care routine, your yard's overall quality and sustainability will increase.

For more information on Bermuda grass varieties, cultural practices and maintenance, contact your local UT-TSU Extension office.



# Summer Night Lights

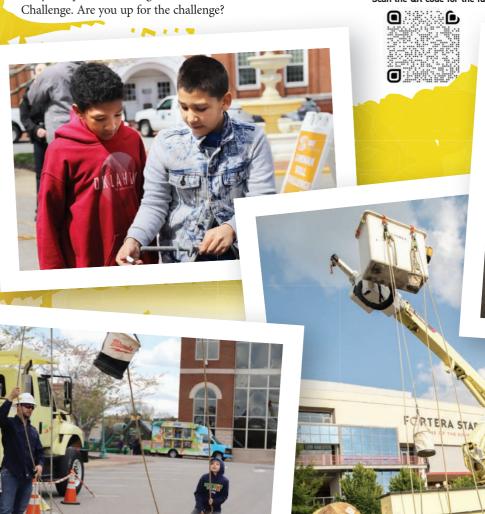
The Mayor's Summer Night Lights program provides purposeful, positive and popular activities for the youth in Clarksville. Each night features a variety of attractions, such as a DJ, sports tournaments, enrichment sessions, health and job information booths, motivational speakers, arts and crafts, and much more. A free meal is provided while food lasts.

Visit CDE Lightband on the following dates and test your speed and strength in our Lineman Skill

#### CDE LIGHTBAND PARTNERS WITH MAYOR'S **SUMMER NIGHT LIGHTS**

- June 15, Bel-Aire Park, 124 Marie Drive.
- June 27, Chapel Street off Market Street.
- July 6, Lincoln Homes, Van Leer Street, behind Austin Peay State University.
- July 25, Edith Pettus, 345 Farris Road.

Scan the QR code for the full list of event dates.







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or vacation, the last thing you want to ask yourself is, "Did I pay my electric bill?" Living in this digital age, ease the burden of remembering to pay your bill manually. Set up AutoPay for monthly

bill pay. Your payment is automatically drafted on the due date each month for free, using your checking or savings account. Enroll online or in the CDE Lightband office today. ■

#### **OTHER CONVENIENT WAYS TO PAY:**

- Automatic bank draft (electronic draft).
- CDE Lightband lobby (vestibule).
- · Kiosk locations:
  - —North Clarksville City Services
- —HiRoad Store No.2, 1599 Ft. Campbell Blvd., across from Hastings.
- —HiRoad Store No. 6, 1801 Ashland City Road, corner of Vista Lane.
- —HiRoad Store No. 15, 2537 Wilma Rudolph Blvd., next to Baskin-Robbins.
- —HiRoad Store No. 17, 3880 Trenton Road, corner of Trenton and Tiny Town.
- · Banks:
  - -Planters Bank.
  - —First Advantage Bank.
  - —Cumberland Bank & Trust.
  - -First Financial.
  - —U.S. Bank (city hall location only)
- Phone: 931-648-8151.
- · Website: www.cdelightband.com.
- Drive-thru: Monday-Friday, 8 a.m. to 5 p.m.
- Lobby: 2021 Wilma Rudolph Blvd.
- Mail: P.O. Box 31509 Clarksville, TN 37040.







There's a vibrant rock-climbing scene in Tennessee that is largely hidden from the rest of the world.

In the early 1980s, rock climbers began to explore the state's untapped potential. Focusing primarily on the Cumberland Plateau—where the river gorges are topped by sandstone cliffs—these pioneers established routes that helped put Southeast climbing on the map.

Ijams Nature Center, just minutes from downtown Knoxville, recently began offering climbing at an old marble quarry called Ijams Crag. About two-thirds of Ijams' 300-plus acres once were covered in quarries that produced Tennessee marble—a highly polishable stone in great demand before World War II, earning Knoxville the nickname "Marble City."

A popular style of modern rock climbing is sport climbing, where climbers clip their ropes into metal bolts drilled into the rock. In contrast, traditional rock climbers arrest their falls by placing removable gear—such as chocks and camming devices—in natural fissures along the climbing routes.

Ijams Crag has more than 30 bolted routes ranging in height from 30 to 60 feet. Climbers are expected to bring their own gear and sign a waiver accepting responsibility for risks associated with climbing and rappelling at the crag.

The Tennessee Wall, near Chattanooga, offers hundreds of traditional climbing routes suitable for climbers of all skill levels

Another climbing destination is Foster Falls Recreation Area, near Tracy City, where most of the cliffs are bolted for advanced sport climbing.



Morgan Simmons is the former outdoor editor for the Knoxville News Sentinel and seven-time winner of the Tennessee Outdoor Writer of the Year award. He lives on a farm in Clinton, Tennessee, with his wife, a donkey, six goats, two dogs and several chickens.

One of the premier climbing destinations in the state is along the Obed Wild and Scenic River—a small unit of the National Park Service on the Cumberland Plateau, a few miles southwest of Wartburg. Congress authorized the 5,300-Obed Wild and Scenic River in 1976 to preserve the area's 45 miles of free-flowing rivers and rugged gorges.

The park attracts about 250,000 visitors a year. Whitewater paddling is the primary draw, but the park also offers more than 300 sport climbing routes along the band of hard sandstone cliffs that cap the river gorges. Through the years, the East Tennessee Climbing Coalition has worked hand in hand with the National Park Service to ensure climbing remains compatible with the park's delicate cliff ecology.

Most of the routes are single-pitch. Many feature overhanging roofs that require high levels of strength and flexibility.

Matt Hudson, a longtime ranger at Obed, says climbers who develop their skills at indoor climbing gyms often get their first taste of outdoor climbing at Obed.

"Climbers really value the sense of wilderness this place offers," Matt says.

Every first Saturday of the month, the Obed Wild and Scenic River staff offer a Climb with a Ranger program that provides free instruction for newcomers to the sport. Participants park at Lilly Bridge and hike a short distance to the Lilly Bluff climbing area, where volunteers and rangers wait with their ropes and safety gear. From 11 a.m. to noon, the instruction is reserved for children 12 and younger. From noon on, it's for all ages. ■

To learn more about Obed, visit www.nps.gov/obed/index.htm or call the park visitor center at 423-346-6294.



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TN-200

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#### **CALL CENTER HOURS**

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#### **GENERAL MANAGER**

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#### **Business Office Closures:**

- JUNETEENTH (Monday, June 20)
- INDEPENDENCE DAY (Monday, July 4)
- LABOR DAY (Monday, September 5)