



The VMGA Report

The Voice for Virginia Master Gardeners

<https://vmga.net/wordpress/>

July/August 2022

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From the President Georgi Hall, Loudoun County

President's Letter

It is hard to believe we are starting a new VMGA fiscal year with new officers. Joining me in serving you the next two years are Vice President Nelda Purcell, Franklin, Secretary Deb Straw, Hill City, Treasurer Stacey Morgan Smith, Suffolk and Past President Leslie Paulson, Prince William.

I want to thank the outgoing officers for guiding us through two rough years with COVID and zoom meetings.

I am excited about the new year and hope that COVID is behind us. We are planning to have more in-person meetings with opportunities to renew acquaintances, meet new members and share ideas in person.

Our August meeting will be zoom and our October 8 meeting will be hosted by James City/Williamsburg Master Gardener Association.

We are looking for units to host our December, January, February and April meetings. If your unit is interested, please let me know: President@vmga.net

We have just completed our first in-person Master Gardener College since 2019. It was held in Blacksburg this year. We had great speakers and it was nice to be able to see all our friends from across the state. This year the Steward program was Land Steward.

Thank you,
Georgi Hall

VMGA President – president@vmga.net



President's Annual Report June 2022

VMGA Officers

President

Georgianna Hall
Loudoun County

Vice President

Nelda Purcell
Franklin County

Secretary

Deb Straw
Hill City County

Treasurer

Stacey Morgen-Smith
Suffolk County

Past President

Leslie Paulson
Prince William County

It was great to be in person, back in Blacksburg for MG College this year. We have had our biennial election which means I am now Past President. I want to thank you all who have stepped up to help in various ways for the past 2 years. We are working on new leadership for our Education Committee. Kirk Barley and his committee did a great job providing Zoom Educational classes for the past 2 years. Thank you, Kirk for your leadership. If you are a committee member and have not let us know if you will be willing to do this again this year, please send Georgi an email with your status.

We have a new chair for Membership, Tonya Harper. I want to thank Deb Straw for chairing this committee for so many years. We are so lucky that we have so many wonderful, giving, volunteers to help VMGA be its best. Don't forget to thank these Master Gardeners when you get a chance.

We had a new Scholarship chair this year, Stacy Morgan Smith. In that she will be taking a new position this year, we will need a replacement for this committee as well. Please give this some thought.

Jennifer Graham has been helping send out blasts to our membership since Tom Bolt had to step down because of his health. It would be great if we had another Master Gardener to help with this task. If you are willing to learn how to do this, please let Georgi know. Check www.vmga.net for her email address.

I hope you all will welcome Georgi and thank her for being our new President. It takes a village to keep things running smoothly and if you want to help, that would be great. Just let your Board know.

Thank you to all who have helped me the past 2 years.

Leslie Paulson
VMGA Past President

2022 VMGA BI-MONTHLY BOARD MEETINGS

August 13th December 10th
October 8th

NEWS AND NOTES FROM VCE LIAISON

Kathleen Reed, EMG Program State Coordinator

For updates, be sure to check out the Bi-weekly Update at <https://mastergardener.ext.vt.edu/biweekly-update/>



photo by: Rachel Healy

VMGA Membership has its advantages:

- ◆ Unit Support
- ◆ Scholarships
- ◆ Newsletter
- ◆ Advanced Training
- ◆ Discount Event Fees
- ◆ Membership Directory
- ◆ Statewide Networking

From the Editor

Deadline for September/
October issue:

August 28, 2022

We would love to feature your unit's announcements, events or articles in the next issue. Articles can be about a favorite plant, tree, project, book review, or other topic of interest. This will encourage involvement around the state, getting more involved.

Please send to:

VMGA Newsletter Editor
newsletter@vmga.net

VMGA EDUCATION SPONSORSHIPS

VMGA is continuing to offer Unit Sponsorships for events that deliver Advanced Continuing Education. We had six units accept our sponsorship during 20/21.

The purpose of our Sponsorship is threefold. We want to:

- 1. Encourage Advanced Continuing Education for Virginia's EMGs.**
- 2. Demonstrate to units the value of VMGA.**
- 3. Have an opportunity to recruit members.**

We will sponsor in-person, virtual, and in-between formats. While our preference is large symposium or workshop events with lots of EMG in attendance, any size event can seek our sponsorship.

If you desire VMGA to defray the costs of your event, submit an application. For more information, please visit <https://vmga.net/wordpress/vmga-educational-sponsorships/>

If you have any questions, please reach out to Tom Baughn at Tbpublius@comcast.net



CALENDAR

Coming up in Loudoun County...

August 9th, 7:00-8:00pm—House Plants by Master Gardener Pamela McGraw

Free Virtual Presentation via WebEx:

September 1st, 7:00-8:00pm—Carex—The Plant Your Garden is Missing, Wendy Brister

October 6th, 7:-8:00pm—Selection Trees by Matt Bright, Earth Sangha

[For more information please contact the Loudoun County Master Gardeners](#)

Coming up in Prince William County...

August 13th, 9:00-12:00pm—Saturday in the Garden (9535 Linton Hall Road, Bristow, VA 20136)—Propagation/Cover Crops—Increase your enjoyment, knowledge and success making new plants through seed starting, cuttings, layering and division. Learn about how to use cover crops to improve your soil.

September 10th, 9:00-12:00pm—Saturday in the Garden (9535 Linton Hall Road, Bristow, VA 20136)—Tree and Shrub Planting/**Plant Sale**. Fall is a great time to plant trees and shrubs. Learn how to select and properly plant appropriate and beautiful native trees and shrubs that fit your suburban yard.

October 8th, 9:00-12:00pm—Saturday in the Garden (9535 Linton Hall Road, Bristow, VA 20136)—Propagation/Shade Gardening. Join Master Gardener Harriet Carter as she discusses the shade gardening and previews beautiful native plants for shade.

[For more information please contact the Prince William County Master Gardeners](#)

Dave Close was Honored by the Inaugural “Friend of Master Gardener Award”

At a special award ceremony, Dave Close, Extension Master Gardener Coordinator, Consumer Horticulture Specialist, and State Program Leader for Agriculture was recognized for his unparalleled efforts to advance our Master Gardener Program. VMGA President, Leslie Paulson delivered an address detailing all the awards he has received, advances he has made for Master Gardeners and the program. He is being promoted out of the Master Gardener Office to State Volunteer Engagement.

Dave has prolific outreach from VCE nationally and internationally. He is a member of the State MG Coordinator Association. He has spoken at several International Master Gardener Conferences, and even attracted the conference to Virginia 2 years ago. His work extends internationally. He attracted international speakers to the conference from Britain and Korea, and has interacted extensively with Korea Cooperative Extension Counterparts and the Royal Horticultural Society.

Dave has been recognized extensively by his peers and Virginia Tech. He is the recipient of more than six awards including Alumni Award for Excellence in Extension, College of Agriculture and Life Sciences, Virginia Tech, 2016 and Gamma Sigma Delta Extension Award, College of Agriculture and Life Sciences, Virginia Tech, 2016.

Dave has worked tirelessly to stabilize the Office of the State Master Gardener Coordinator. Not too many years ago we learned at Master Gardener College that the funding for his position was within days of ending. Through his efforts promoting the State Coordinator’s Endowment through state-wide newsletters; providing Master Gardeners with relevant data to remind their local legislators of the extreme value of the volunteer Master Gardener Program to the citizens of the Commonwealth; developing and promulgating Impact Statements showing that value; interacting with Dr. Ed Jones and other leaders in VCE, not only has he moved the State Coordinator position away from uncertainty, he has worked tirelessly to establish a stable staff of several support staff, and student interns and helpers.



Photo Caption: VMGA President Leslie Paulson (left) and Vice-President Nelda Purcell (right) deliver the proclamation to Dave Close the initial recipient of the Friend of Master Gardener Award.

Photo Credit: Pat Reilly

No single person has had a longer, more dynamic, and successful impact on VCE Master Gardeners than Dave Close. For these reasons The Virginia Master Gardener Association has established the award of Friend of Virginia Master Gardeners to help recognize Dave’s contributions to us, to our Master Gardener Program, and to the citizens of the Commonwealth of Virginia.

Below is the address delivered by Leslie Paulson:

Dave Close has been a friend to Master Gardeners since his arrival here in 2004.

His first exposure to VCE Master Gardeners was to arrive and immediately host MG College. His arrival at Virginia Tech signaled a major change in VCE’s and Virginia Tech’s approach to Master Gardeners and to our program. Prior to his appointment as Extension Master Gardener Coordinator, the position was a part-time graduate assistantship in the Department of Horticulture.

Dave’s first mark on VCE Master Gardeners was to move MG College from this building, Litton Reaves to Torgersen Hall. This expanded our ability to grow Master Gardener College in both size and quality.

Under Dave’s dynamic leadership our VCE Master Gardener Program has flourished and grown in many different ways.

Dave helped VMGA arrange and implement the State Coordinator’s Endowment establishing a consistent source of funding for the State Coordinator’s Office. This endowment has recently reached a milestone of \$1 million of cash and deferred gifts. Several other states have simulated this endowment plan to help stabilize funding for their Master Gardener programs.

Dave helped establish the Advanced Master Gardener, Land Care Steward program through extramural funding from the National Fire Plan of the National Park Service. This program resulted in a popular Extension Publication, and became the model for Advanced Master Gardening training currently employed by offering those trainings in conjunction with Master

Gardener College.

Dave attracted outside funding from Virginia Department of Conservation and Recreation to revamp the Advanced Master Gardener Water training program and manual as well as generate materials to expand an urban nutrient management program involving Extension Master Gardeners to mitigate excess nutrients in the Chesapeake Bay.

He worked closely with a dedicated team of Tree Stewards to develop a brand-new electronic training manual and programming resources for Advanced Master Gardener Tree Stewards 2021.

In addition to numerous of those six-digit Extension publications, Dave is the author of more than 11 publications.



No single person has had a longer, more dynamic, and successful impact on VCE Master Gardeners than Dave Close. For these reasons The Virginia Master Gardener Association has established the award of Friend of Virginia Master Gardeners to help recognize Dave’s contributions to us, to our Master Gardener Program, and to the citizens of the Commonwealth of Virginia.

Dave comes to us with a background in forestry. It took us a good deal of time to realize the value of the landscape as other than cordwood forestry.



We have it on excellent authority that Dave has finally realized that landscaping can be measured in ways other than the number of board feet to be harvested. This is a NewGen Boxwood that is said to be reliably resistant to common pests and diseases – and we hope that Dave will likewise remain resistant to common pests and diseases.

This is an Olla. It is very useful in landscaping. Dave you can dig a hole put this Olla in there, fill it with water, and hopefully keep that boxwood thriving. This is an Olla that you will recognize. It represents all the frustrations we have all endured together. Each one has, in the end, given us much to laugh about.



2022 Diane Relf Extension Master Gardener College Scholarships Awarded

The VMGA Scholarship Committee is pleased to announce it has awarded eight \$400 Extension Master Gardener College (EMGC) scholarships at this year's VMGA Annual Meeting. This year's recipients are, pictured left to right:

Jennifer Flitton Adams - Northern Shenandoah Valley

Joan Dozier - Wise

Peggy Agnor - Rockbridge

Jimmie Jones - Prince William

Karen Lyons - Rockbridge

Jere Mollen - Chesterfield

Vickie Rockwell - James City County/Williamsburg

Not pictured is Audrey Hirsch, our eight recipient.

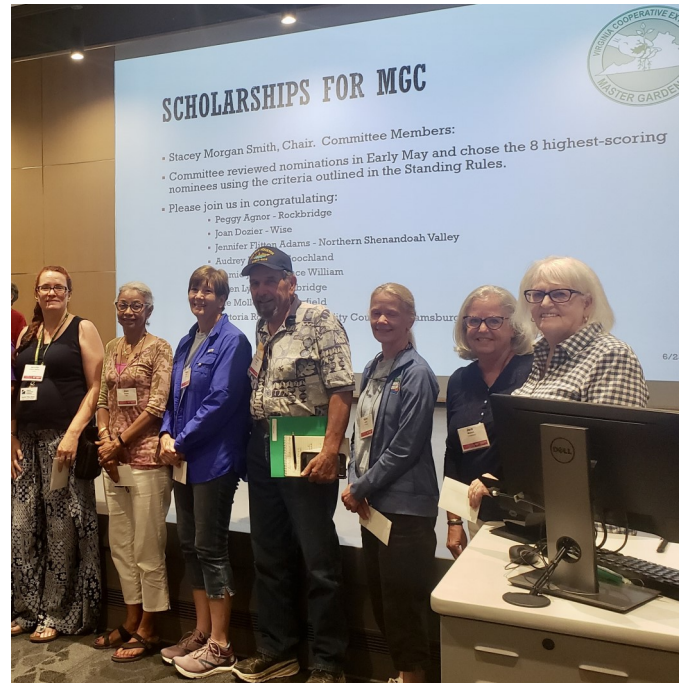


Photo Credit: Pat Reilly

Each of our recipients was nominated by their VCE Agent or EMG Coordinator, who recognized their outstanding qualifications, including unit leadership, serving as role models to other volunteers, and demonstrating the VCE Master Gardener Program's core values of respect, accountability, and collaboration. Learn more about our recipients, their favorite projects, and their experiences at EMGC in the next issue of *The VMGA Report*.

The Diane Relf scholarship is designed to help more of our outstanding volunteers attend EMGC. The majority of the funds available are budgeted for and provided by VMGA. Individuals and local EMG associations can help ensure more volunteers are able to receive scholarships by making any sized donation to VMGA, designated for the scholarship fund. \$488.00 in scholarship-designated donations were received last year, which fully funded one scholarship recipient and part of another. Thank you to all those who made donations!

Another way VMGA members can support the scholarship is to serve on the committee. If you're interested in serving next year, please get in touch with 2022 Scholarship Committee Chair Stacey Morgan Smith or VMGA President Georgi Hall. Thank you to the members of this year's Committee, which includes Cynthia Falconer, Erica Jones, Ted Munns, Jim Revell, Marilyn Riddle, Joanne Royaltey, and Joyce Skidmore.

Stacey Morgan Smith
2022 Scholarship Committee Chair

NEWSWORTHY NOTES FROM NOTABLE NEWSLETTERS

The VMGA Report is always looking for submissions from EMGs, Unit Representatives, VMGA Committee Chairs, VCE Agents, and VCE Program Associates. The next deadline for the VMGA Newsletter is August 28th. What can you submit? All the news that's fit to print! Here are a few suggestions to get you started:

- Training recaps. Tell us your takeaways!
- Highlights of your successes in programming, lessons learned, photos of volunteers in action
- Upcoming events offered by your unit
- Book reviews
- Plant or garden spotlights.
- Photos of your plants
- Recipes using produce from your garden or a farmer's market
- Garden-related poems and other creative writing

Be sure to include your name and unit name. Submit your content by email to newsletter@vmga.net.

Master Gardener Demonstration Garden Turns 30!

By Barbara Bailey, Loudoun County

VCE Loudoun Master Gardeners dreamed big back in 1991 and envisioned a demonstration garden that would educate the public on sustainable and organic gardening. Taking the initiative further to a field at Ida Lee Park, Leesburg, they got permission to begin in 1992. It all started with the tilling of a small plot of land--a 40' x 40' vegetable garden with ten raised beds.

Throughout the years, the garden grew and changed with horticulture needs of the community as well as the vision of the Master Gardeners. The one constant was the organic growing of produce that was donated to the local food bank, Hunger Relief (formerly called Interfaith Relief). Within 3 years, the number of raised beds increased to 16 and drip irrigation was added. After a few years, the annual produce donations averaged 1,000 pounds--and still average that today.



After 10 years, the garden expanded to include a Butterfly Garden, fruit trees, a Children's Garden, brambles, an Ornamental Grass Bed, a Shade Garden, a Water Wise Garden/Drought Tolerant Garden, a Bulb Bed, an Evergreen Garden, and an array of compost containers. After another 20 years, expansion included a Wedding Garden, a Pergola Classroom, a Heritage Garden, a Kitchen Herb Garden, an Ornamental Border, turf plots, and garden signage. Irrigation was expanded throughout the garden. Water stations were added, and a strong, sturdy deer fence was installed around the vegetable gardens.

So many touched this garden with love and determination to educate. The vision of those few Master Gardeners in 1992 lives on, and the environment and residents of the community are better for it. It has stood the test of time through drought, rainy seasons, ice, and snow. Many lifelong friendships have resulted from working in the garden.



Come out to visit! Enjoy the celebration of 30 years of the VCE Loudoun Master Gardener Demonstration Garden at Ida Lee Park, Leesburg.. For more information: <https://loudouncountymastergardeners.org/demonstration-garden/>

All photos by: Rachel Healy

The GraineThumb

Landscaping Beyond Plants

By George Graine, Fairfax Master Gardener

“Gardens are the results of a collaboration between art and nature” ---Penelope Hobhouse

A new venture in landscape design awaits you if you read “The New Tech Garden” by the iconoclast garden designer Paul



Cooper (Mitchell Beazley – Octopus Publishing, 2001). This book is truly inspirational and will broaden your garden experience and opportunities. It explores the potential use of man-made materials and alternative planting mediums including steel, plexiglass, textiles, glass, wood and more in order to create a contemporary design and lifestyle for your gardening pleasure. No doubt you are aware that the image of a garden is always in a state of change. In addition to seasonal change, consider reflecting styles, needs and technology of the times. Repeat - this book is like a trip that will take you to a broader gardening experience.

Cooper is well aware of the traditional approach to design; however, he has a decidedly different take in this regard. He challenges “...the traditional concept of the garden and questioning how we make gardens.” Although his book was published more than 20 years ago, his ideas are still fresh. It makes one wonder how these ideas are being incorporated into some garden designs of today. Page upon page of “The New Tech Garden” are filled with color photos of “...ambitious multi-media purpose extravagances.” Indeed, these may appear as radical installations yet they are exciting

and thought provoking as you turn page after page where you will find a plethora of different landscaping styles.

One needs to keep an open mind and consider how new techniques using man-made materials will contribute to a much broader concept of your own garden. If you stop to consider the evolution of gardens from years ago, as well as those from gardens from around the world, this might give you pause. The idea of a new tech garden is really as much of a challenge as you might consider. The fact is that we have been using non plant material such as wood and stone in our gardens for a very long time. On the other hand, the use of other man-made materials, as noted above, will release you from conventional design elements. Some of these changes can be traced back to the late 1970's so that new tech has been slowly evolving for about 50 years.

Cooper challenges the value of traditional design and longevity by replacing some elements with a more colorful and vibrant visual style. His point is to emphasize changes vs. the status quo. Dare to be different and experiment and see the reaction. If you were to study design history, you would come to the conclusion that change evolves. To further make this point, look at clothes and automobile design and even fairly recent food design and tastes. Change is all around us.

Although landscape designers and gardeners are slow to react (adjust?) to technology, nevertheless it is available for those that dare. Essentially, new landscapes and gardens have adapted old styles to new problems and then created alternatives for the landscape. Perhaps it is past time to reject the preconceived limitations of traditional garden design. Consider replacing it with a garden that is less entrenched with horticultural niceties of plants by using some of your own unorthodox expressions. In other words, your garden need not conform to a particular style but rather can be an expression of your own conversion and perhaps an experiment. By doing so, this may become an inspiration for others as they may think – Oh my gosh, why didn't I think of that?

Chapters following the book introduction provide a Heinz-type of responses starting with what could be called the shock of the new. Sections on high tech solutions include many examples. For example, the kinetic garden where movement is featured. There is also a section on instant gratification that goes beyond potted plants. To be sure, the author notes in his section of “The Soft Garden” that “Not all contemporary architecture and three dimensional design is concerned with the use of hard-edged or high pressure materials.”

In summary, “The New Tech Garden” will help you realize that you have the potential to consider how new materials can be incorporated in your own innovative and individualistic garden. Even if your garden is unconventional, it can still be low maintenance depending on the plants you chose to enhance your own new tech garden. The book provides numerous examples of urban garden spaces for those who may be interested in an unconventional landscape or a garden for pleasure rather than constant labor. Garden on!

Insights: Carbon Farming

By Abbie & Vincent Panettiere, Prince William County

CO₂ only makes up about .04% of the atmosphere, so it would seem that it shouldn't be a big issue in affecting the climate, but if you put a mere four teaspoons of salt in a recipe that called for only two, the results may be quite unpleasant.

A report from MIT's Climate Panel of May 18, 2021, stated that "Atmospheric CO₂ levels of between 280 and 350 parts per million created the climate that let humanity build and feed the modern world." The level of CO₂ a few centuries ago, before the industrial era began, was about 280 ppm (parts per million). According to NASA, in April 2021, the amount had risen to about 416 ppm.

According to a NOAA report "Carbon dioxide levels are now higher than at anytime in the past 3.6 million years."

Worldwide, 24% of carbon dioxide emissions can be laid to current agriculture and forestry practices. The United States alone accounts for 9% of the total number. A great deal of carbon must be removed from the atmosphere to reverse the effects of climate change.

The oceans are the largest carbon sink. A carbon sink is a land or ocean mass that can take in carbon - most notably carbon dioxide - from the atmosphere. Oceans absorb about a quarter of the carbon dioxide in the air. The process depends on the difference in pressure of the ocean's and the atmosphere's carbon dioxide content. Carbon dioxide is also taken into the ocean through sea vegetation, coral and algae. Unfortunately, the absorption of excess carbon dioxide has led to acidification of ocean water which is doing harm to the creatures who live there.

Soil sequesters four times the amount of carbon stored in the atmosphere which makes it a most important place to work to improve the sequestration of carbon. Among the methods in use to improve the amount of carbon stored in the soil is carbon farming.

When you take a closer look at the idea it can amaze you how many and various methods there are by which carbon can be taken out of the air and sequestered in plants and soil.

Carbon farming, according to the US Department of Agriculture, is defined as: "...the use of specific on-farm practices designed to take carbon out of the air and store it in soils and plant material." The goal involves the use of various methods to turn farming into a net absorber of carbon dioxide rather than a net emitter as it is generally now. Practices used currently in organic farming include permaculture, and regenerative agriculture.

Without human interference, the exchange of carbon in the atmosphere, the ground, oceans and living organic materials would maintain a natural flow from one space to the other. Plants absorb carbon dioxide and water and use the sun's energy to split the water into oxygen and hydrogen. For plants, the oxygen is a waste product and is released back into the atmosphere but the carbon dioxide benefits the plants by combining with the hydrogen from the water to create sugars on which the plants survive. The carbon is stored in the plants until the plants decay. Some of it is stored in the ground for long periods of time. Natural decay does release some carbon back into the atmosphere.

Trees, for their size and their ability to sequester large quantities of carbon, are perhaps the most important elements to consider in carbon farming. Their ability to hold large quantities of carbon will fluctuate because of factors which include location, time of year, variety of tree and the use to be made of trees but the life span of trees for this purpose is generally considered to be 200 years and, while trees sequester great amounts of carbon over that lifetime, their most active time is in their youth, between ten and forty-five years after planting.

There are several ways in which trees are useful in aiding this effort. The first is called Forest Farming or, for larger installations, agroforestry. Trees and/or wooded land are used to help in the cultivation of non-timber products which can include mushrooms and fungi, various perennial plants, flowers, field crops and also in the raising of farm animals. Trees in a managed field of this sort are planted several rows deep, then several rows are left between these rows for the growing of non-tree crops or raising animals. To make the process more profitable for the farmer, nut or fruit trees can be used to provide a profitable side crop for this purpose.

Maria Stewart wrote tellingly of forest gardening in this year's winter In Season when, with her co-editor husband, Jason Alexander, she visited the idyllic forest garden of "Forested" in Bowie, MD. founded by Lincoln Smith. Her description of the farm showed how Mr. Smith had turned his forested area into a very productive farm and raised vegetables, ducks

Insights: Carbon Farming Sources & For More Information

<https://climate.mit.edu/ask-mit/what-ideal-level-carbon-dioxide-atmosphere-human-life>

MIT Climate Portal

What is the ideal level of carbon dioxide in the atmosphere for human life?

<https://research.noaa.gov>

NOAA Research News

GARDEN TO TABLE:

FORESTED by Maria Stewart, Master Gardener Volunteer, Winter In Season, 2022

<https://www.greenamerica.org/food-climate/what-carbon-farming>

What is Carbon Farming?

Agriculture and Climate Change

<https://earth.fm/updates/carbon-farming-sequestering-carbon-in-plants-and-soil/>

Carbon Farming: Sequestering Carbon in Plants and Soil

Elizabeth Waddington June 4, 2020

[https://](https://www.marincarbonproject.org/about)

www.marincarbonproject.org/about

Marin Carbon Project

About Marin Carbon Project

[https://](https://www.climatehubs.usda.gov/hubs/california/topic/soil-health-soil-amendments-and-carbon-farming)

www.climatehubs.usda.gov/hubs/california/topic/soil-health-soil-amendments-and-carbon-farming

Climate Hubs US Department of Agriculture Soil Health, Soil Amendments, and Carbon Farming

[https://](https://orchardrecycling.ucdavis.edu/what-whole-orchard-recycling)

orchardrecycling.ucdavis.edu/what-whole-orchard-recycling

The University of California Davis is a public land-grant research university near Davis, California. What is Whole Orchard Recycling?

<https://www.renovainc.com/en/business/biomass/>

Renova Biomass Power Generation

<https://www.usda.gov/topics/forestry/agroforestry/agroforestry-frequently-asked-questions>

U.S. Department of Agriculture Agroforestry FAQs

[https://](https://treeyopermacultureedu.com/)

treeyopermacultureedu.com/

and other growing items in company with trees that, beside sequestering carbon, provided protection from strong winds, heavy rains, and strong sunshine.

In “silvoarable” systems, to capture carbon, trees may also be used to provide wooded areas that protect interspersed long strips of soil to grow crops such as wheat or barley. This process is called “alley-cropping”.

Silvopasture systems use trees in helping to care for farm animals. Chickens may be caged in movable coops so that they can find food while finding shade from the sun, pigs can root around and other farm animals can forage around in the forested environment.

Besides trees, other permanent plantings such as shrubs and hedgerows are important in improving the sequestration of carbon. The wider and higher the hedge, the more carbon it can sequester. A properly constructed hedgerow can be ten to twelve feet wide and many miles long. Besides sequestration of carbon, hedgerows provide habitat for small animals. Hedges and hedgerows purify the air. Whether crops are grown or animals grazed, the hedgerow keeps out deer and other undesirable animals from getting into the field to eat the crops, and fences keep the desired animals grazing in fields from getting out.

Perennials with deep tap or thick roots can store carbon better and longer in the soil. A choice that might seem unlikely is clumping bamboo which is actually a grass. It is the fastest growing plant on earth and has abilities to store carbon that are as impressive as those trees can provide.

Windbreaks and contour planting of trees can increase carbon sequestration by improving the conditions for growing crops in riparian (river), buffer strips. The trees with their deep roots protect the rivers from erosion and the ill effects of agricultural run-off and help to sequester carbon.

Wetlands are included in the riparian definition and, in an article in ethical.net, “Carbon Farming: Sequestering Carbon in Plants and Soil,” written by Elizabeth Waddington on June 4, 2020, she states that “Wetlands store 14.5% of the world’s soil carbon, and yet cover only 6% of its total land area.”

Whole orchard recycling. A report from UC Davis (University of California, Davis, CA) dated 10/30/18, concerns the need for a climate-friendly way of disposing of – in this case – old almond tree orchards that have become financially non-profitable and need to be replaced. Current methods for clearing out old trees and unprofitable orchards had been to burn them in the field or send them to a biomass power generation plant. Biomass power generation, according to Renova Corporation, “...uses biological materials (called biomass) such as waste or residue from logging or agriculture as fuel to generate electricity.” Since the carbon dioxide released during the burning of the biomass is only what the plants absorbed during their growth, the process may be considered carbon neutral.

This would seem to be an excellent source of power, particularly compared to coal or oil. However, natural gas prices have fallen since 2015 and many biomass power plants have closed, but with current issues with fossil fuel prices, that may change. As for burning those unprofitable orchards, burning permits have become difficult and expensive to obtain as California seeks to improve air quality.

The method the UC Davis scientists are proposing is whole-orchard recycling, which is the “...on-site grinding or chipping of whole trees during orchard removal and incorporation of the ground or chipped biomass into the topsoil prior to re-planting.” In other words, turn the old trees into mulch. Instead of sending carbon dioxide into the air by burning the trees, sequester the carbon, improve the soil structure and, as mulch, increase the efficiency of water use.

Other steps that should be taken would involve increasing microbial activity in the soil by the

[chapter-6-trees/alley-cropping-and-silvopasture/](https://www.civileats.com/2018/04/06/adding-crushed-volcanic-rock-to-farm-soil-could-boost-crops-and-slow-global-warming/)
[Treeyopermaculture.edu](https://www.civileats.com/2018/04/06/adding-crushed-volcanic-rock-to-farm-soil-could-boost-crops-and-slow-global-warming/)

Written by Doug Crouch

<https://civileats.com/2018/04/06/adding-crushed-volcanic-rock-to-farm-soil-could-boost-crops-and-slow-global-warming/>

(must pay for site)

Civil Eats

Adding Crushed Volcanic Rock to Farm Soil Could Boost Crops—and Slow Global Warming

<https://e360.yale.edu/features/how-adding-rock-dust-to-soil-can-help-get-carbon-into-the-ground>

Published at the Yale School of the Environment

How Adding Rock Dust to Soil Could Help Get Carbon into the Ground

By Susan Cosier 9/2/2021

<https://en.wikipedia.org/wiki/Wollastonite>
Wollastonite
From Wikipedia, the free encyclopedia

<https://www.bizencyclopedia.com/article/a-guide-to-multi-layer-farming-and-its-benefits>

BizEncyclopedia

A Guide to Multi-layer Farming and its Benefits

https://energyeducation.ca/encyclopedia/Carbon_sink

University of Calgary Energy Education

Carbon sink

<https://en.wikipedia.org/wiki/Biochar>

Biochar From Wikipedia, the free encyclopedia

<https://www.nps.gov/thro/learn/historyculture/civilian-conservation-corps.htm>

National Park Service Civilian Conservation Corps

Washington Post
Science and Health Section
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Climate Change – This underground carbon-dioxide storage idea turns out to be cracked. That’s actually good.

By Erin Blakemore

use of compost and biochar. For those not familiar with biochar, it is a soil conditioner made by burning biomass (wood, waste remainders of crops, weeds, etc.) in a fire that is burned with as little oxygen present as possible, much the way charcoal is made. It is stable, rich in carbon, and can remain in the soil for thousands of years.

Rewilding of waste areas such as logged-over areas, abandoned farms, any degraded areas or the repair of existing forests by reforestation. When Franklin Delano Roosevelt first took office during the depths of the Great Depression, on March 31, 1933, Congress created the Civilian Conservation Corps. (CCC), to save portions of the nation such as the Dust Bowl and areas where the soil had been abandoned, become degraded and was subject to erosion.

The Corps only lasted nine years, until 1941, and was not connected with the climate crisis we face today, but in providing honest work for some three million young men, the National Park Department release said that it “... made valuable contributions to forest management, flood control, conservation projects, and the development of state and national parks, forests, and historic sites.” It certainly deserves mention.

Next, Multi-layer Farming. This has also been called multi-storied cropping or multi-tier farming. According to BizEncyclopedia, “.It is the method of growing compatible plants of different heights on the same field at the same time. This type of farming is mostly practiced in orchards and plantations to make optimum use of solar energy even under high plant density.”

Using this system, the farmer gets most use from the sun by planting crops in tiers according to their height and water requirements: the tallest plants, planted first, have the greatest need for sunlight and will most need to be able to evaporate water from leaves, stems and flowers. The next layers, progressively shorter, will be plants that can survive in shade or need some of it and also need higher humidity.

By this method, a farmer may grow four or five different crops in the same field at the same time, allowing the farmer greater profit from a smaller space. Seeds are sowed, depending on the ultimate size of the plant being grown, in deep depth, middle, then top, and even topmost, depending on how much room is required for their roots.

Finally, a method to improve soil that seems quite unusual involves the idea that using rock that has been pulverized to dust and spreading that on farm soil could take carbon from the atmosphere and improve crop yields. To produce the pulverized dust, the method, called “enhanced rock weathering”, imitates what it takes millions of years to achieve in nature: rain, which is slightly acidic, breaks down rock and in doing so converts carbon dioxide to bicarbonate. The bicarbonate washes into the ocean over time and is stored there for hundreds of thousands of years.

This means that pulverizing the rock used in the present day, “enhanced rock weathering” speeds the process to a great degree. The process pulverizes silicate rocks such as basalt and the minerals are ready to be released to the field to store carbon within several years.

An article published at the Yale School of the Environment covered a project to test the ability of powdered silicate rocks to benefit crops in the field, The soil extracts far more carbon from the air and crop yields increase. Basalt is mentioned often, and other, less common silicate rocks are mentioned The Science and Health Section of the February 15th Washington Post covered experiments being done by scientists at Columbia University using dunite, a commonly available form of igneous rock named after a mountain in New Zealand, to achieve this purpose. The program of experiments’ title is “H14C-05 – Permeability evolution during carbon mineralization in peridotite: Implications for geological carbon storage”, and the technique used is to dissolve carbon dioxide in water and place it in contact with rocks so that it changes into a mineral.

Dunite, or peridotite, is common on land and in the oceans and sucks up carbon naturally and

turns it into minerals. The idea here is to age the rock, pulverize it, and spread it on farmers' fields. Rock dust, depending on its variety, has been shown to improve farmers crops: it can release nutrients such as phosphorous and potassium, magnesium and calcium, and may improve the release of nitrogen, so that farmers don't need to use as much nitrogen fertilizer. At the same time it is improving the crops, minerals in the soil react with water and carbon forming bicarbonates. These are stable, make their way to the ocean ultimately and precipitate out as limestone.

The fact that there are so many ways that we may lessen the amount of carbon dioxide in our atmosphere gives us hope that can return the CO2 in the air to earlier, more natural levels.

RECIPE
Sauteed Greens

INGREDIENTS

- 1 Bunch of kale (or other greens such as Collards etc.)
- 2 Cloves of garlic
- 1 Small onion
- 2 T Olive oil
- 1 t Apple cider vinegar
- 1 pinch of red pepper flakes
- Salt & pepper to taste

INSTRUCTIONS

- 1) Wash greens, set aside (do not dry)
- 2) Chop onion and sauté in olive oil over medium heat until translucent
- 3) Mince garlic, add to onions
- 4) Add greens (in batches if needed)
- 5) Add pinch of red pepper flakes and salt & pepper
- 6) Cover and cook on low-medium for about 10 minutes
- 7) Add vinegar, stir well and serve

**a dash of wine or broth can be added when greens are added

source:
[Michigan State University Extension](#)

Garden to Table: Forested

By Maria Stewart, Prince William County

Several years ago, my husband Jason and I attended a gardening symposium in Washington, D.C. Perusing the listings for the different lectures, I stopped short on an offering promising to discuss forest gardening. What? Forest gardening? Gardening in the forest? I was intrigued, so we signed up. That's how we learned about [Forested, founded by Lincoln Smith, and located in Bowie, MD](#). We visited Forested's Forest Garden a short time later to learn more and see the forest garden in action. It was an exciting and eye-opening experience.

On a clear autumn day, we pulled off the main road, parked, and followed a path on foot to arrive at the yellow gate, and the entrance to the Forest Garden. Lincoln Smith welcomed us and several other visitors, to his oasis. It's ironically tucked behind a conventional farm field which, at the time, was bare, without any cover crop to enrich the soil or suppress carbon.

Lincoln gave us a tour of his prolific garden. He showed us his mushroom logs, and chestnut, persimmon, and paw-paw trees. He also showed us how he was safely raising ducks alongside his resident fox family, and growing greens such as sea kale, and sorrel (a favorite with children because it tastes a lot like the Sour Patch Kids candy), to name only a few.

We were astounded at how this patch of forest provided such a diverse and delicious bounty.

As we sat out in the garden, learning ways to incorporate forest garden practices in our own landscapes, Lincoln prepared samples of fruits, nuts, and sauteed vegetables—yum! Lincoln offers free advice on how to get your own forest garden started. He also has many paying clients. He's helped design and install forest gardens for private residences, and public spaces. Since our visit, Forested has expanded its events offerings at the garden, hosting a full gourmet brunch prepared by accomplished chefs, yoga in the garden, permaculture design courses, tours, and volunteer opportunities. Forested is a shining example of how humans can really live more harmoniously with the natural world—a world humanity too often neglects and abuses. Forested is a hopeful place, an attainable solution to many of our environmental problems

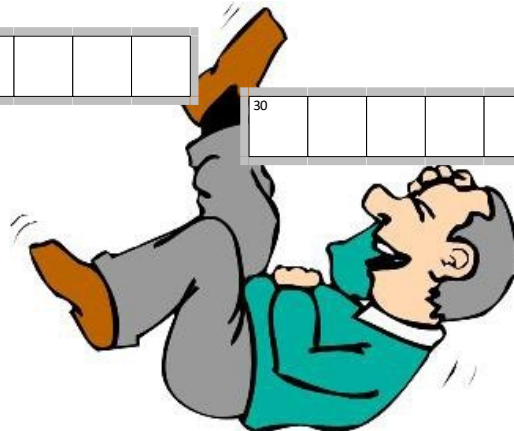
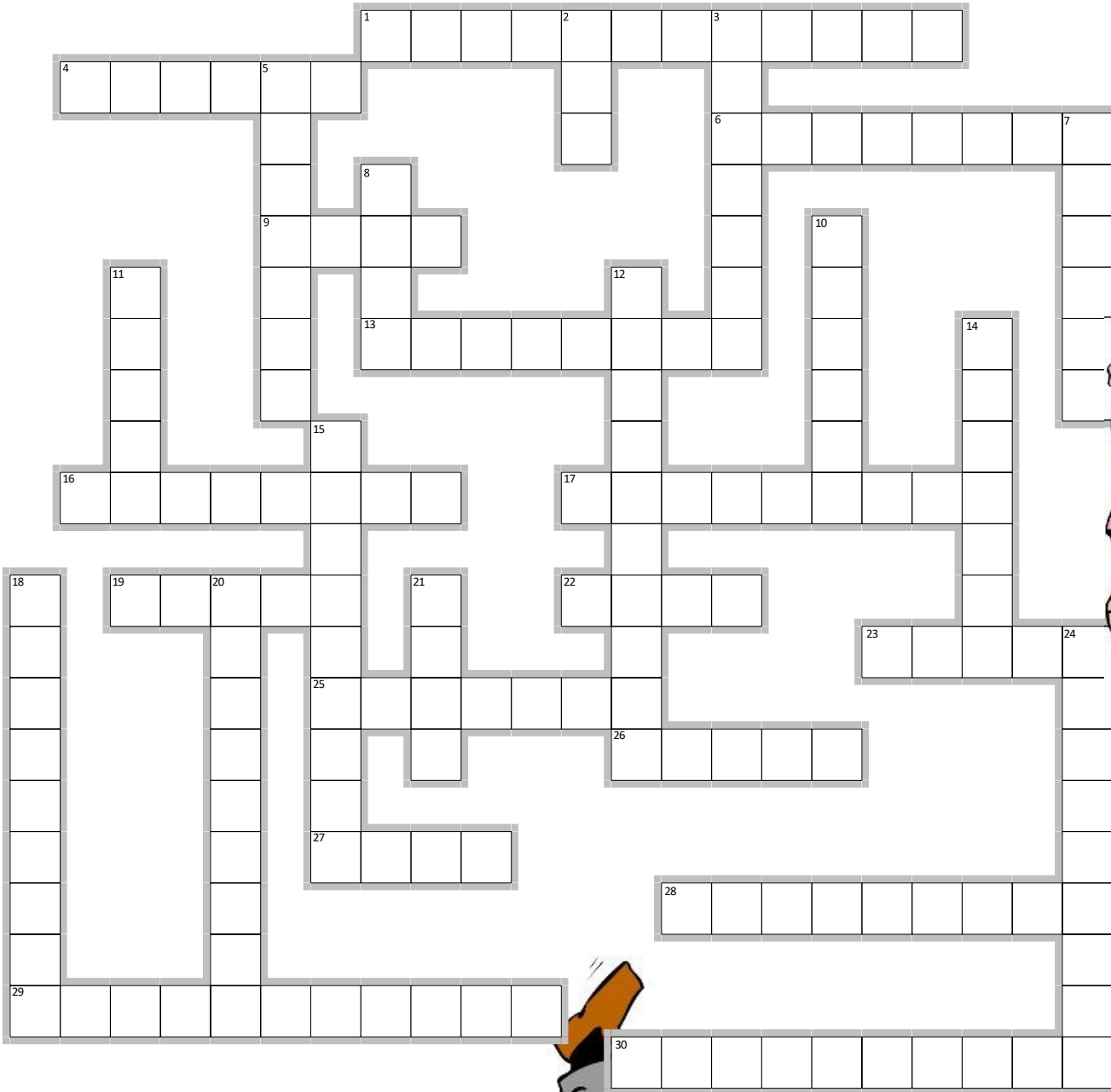


[A glimpse of the forest's bounty gathered for a gourmet brunch](#)

Corny Jokes Crossword

Every clue in this printable crossword puzzle is a joke – a very corny one. If you can come up with the same answer I did, then you'll have no problem completing this puzzle. But then again, it may be a bit more difficult than it sounds.

DISCLAIMER: There may be more than one answer to some of these groaners, and you may not think these are funny at all. But I'm guessing you'll love solving this crossword!



Corny Jokes Clues

Across

1. How does a mouse feel after it takes a bath? (2 wds.)
4. Where were the first donuts fried?
6. Where are delinquent hard drives sent? (2 wds.)
9. What is a diver's favorite game?
13. What do rock musicians use when they get hurt?
16. What pets do musicians like?
17. What kind of artist is likely to get arrested? (2 wd.)
19. If a seagull flies over the sea, what flies over the bay?
22. What cannot run even though it has three feet?
23. What did the mother buffalo say to her son before he left?
25. What's the most popular tune?
26. What is brown and sticky?
27. What do you put in a barrel to make it lighter?
28. What do you call an angle that's been in a car crash?
29. How do you make a puppy disappear? (2 wds.)
30. What do you get when you cross chocolate powder with a magic dragon? (2wds.)



Down

2. What do you call a boy hanging on the wall?
3. What do you get when you cross an ear of corn with a spider?
5. How did the computer feel after its memory had been upgraded?
7. How to you throw the best party in the universe?
8. What has teeth but doesn't bite?
10. How do you get an astronaut's baby to fall asleep?
11. What can be divided, but no one can see where it was divided?
12. What kind of waves are impossible to swim in?
14. What do cats have that no other animal in the world has?
15. What kind of fish like peanut butter?
18. What kind of music can you play with your toes?
20. What do you call a grizzle bear with no teeth (2 wds.)
21. What musical instrument is not to be believed?
24. What's the difference between an old penny and a new dime? (2 wds.)



Answers

