

# MARKET BULLETIN

Vol. 95 • Num. 4

February 18, 2021

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## PREPARE YOUR PITCHES

### ACRE TO ACCEPT APPLICATIONS FOR ADVANCED ENTREPRENEURSHIP PROGRAM

BY EVA MOORE

Starting March 2, the Agribusiness Center for Research and Entrepreneurship (ACRE) at the South Carolina Department of Agriculture will accept applications for its 2021 Advanced Entrepreneurship program.

oysters at Whole Foods. Covered In Cotton, a family company that grows cotton to make woven blankets, was overall winner of Garden & Gun's Made In the South Awards last year. Heron Farms, Sam Norton's company that grows salt-tolerant sea



Nance Farm Creamery (left) and Barrier Island Oyster Co. are previous awardees in the ACRE Advanced Entrepreneurship program. Images via Facebook.

The competitive program is for agribusiness entrepreneurs who would benefit from business mentoring, targeted funding, and access to grant consultants. Applicants selected will have the opportunity to pitch to a panel of judges, competing to be awarded up to \$25,000 for their company or product.

"We're looking to find these small businesses that aren't traditional and help them a little bit," says Kyle Player, ACRE's executive director. "A lot of these folks couldn't go to the bank and get a traditional loan because they don't have the collateral. ACRE can bridge that gap so they can get a loan in the future. We've also helped several

apply and receive federal grant funds."

Now in its third year, ACRE has so far awarded nearly \$500,000 to 35 entrepreneurs, helped these entrepreneurs secure more than \$1 million in grant funding, and provided intensive training to 60 businesses.

ACRE's past Advanced Entrepreneurship awardees have had some notable successes. Barrier Island Oyster Co. is now selling its hand-raised farmed

beans, is in production and growing rapidly. And family-owned dairy Nance Farm has used ACRE funding to build a creamery from the ground up.

Woodland Valley Mushrooms and Lowcountry Creamery, meanwhile, were recently awarded value-added producer grants with technical assistance from ACRE.

The Advanced Entrepreneurship application requires a business plan and a prototype or sales history for the applicant's company or product. Businesses must be located in South Carolina

For the first time this year, the application includes a detailed guide to what ACRE is looking for in a business plan, says Player. The new guide is being offered based on survey feedback from previous participants.

"I think people get overwhelmed if they haven't done a business plan before," Player says. "This will help the applicants and give a little more uniformity to the business plans. Hopefully the result is everyone will cover everything we asked them to."

ACRE has a separate Curriculum Program track each fall for beginning innovators who have an agribusiness idea but don't have experience in business.

For more information, visit [acre-sc.com](http://acre-sc.com) or contact Kyle Player at 803-734-2324 or [kplayer@scda.sc.gov](mailto:kplayer@scda.sc.gov).

## COMMISSIONER'S CORNER

HUGH E. WEATHERS

SOUTH CAROLINA COMMISSIONER OF AGRICULTURE



## SUPPORT LOCAL IN 2021

Each year since 2009, the South Carolina Department of Agriculture has been part of the three-day Southeastern Wildlife Exposition in Charleston. We set up a big tent in the middle of 40,000 people in Marion Square, inviting top restaurant chefs to perform cooking demonstrations using Certified South Carolina foods. We invite farmers up on stage, too, to talk about what they grow and raise, and we pass out food samples to throngs of festivalgoers. Another important part of SEWE is the Certified South Carolina specialty food vendors who set up booths in the tent selling everything from chocolate milk to barbecue sauce. I've walked through the tent many times and, with the crowd, it can take 30 minutes to get through. This year, SEWE made the tough decision to cancel the festival, realizing they couldn't put on an event that met their standards but also felt safe. I support their decision. But I'm sure missing this annual showcase of South Carolina food and flavors. SEWE gives us an opportunity to spotlight the relationship between great South Carolina restaurants and agriculture, driving home the chef-farmer connection for a large audience.

SEWE is also an important kickoff to the tourist season for the Lowcountry's hospitality industry, followed by

the Charleston Wine and Food Festival – also cancelled for 2021. Restaurants have had a tough time during the pandemic, as I'm sure you know, and they can use all the help they can get. Our Fresh On The Menu program identifies restaurants that have committed to using at least 25% Certified SC Grown products on their menus. I urge you to support these restaurants and their commitment to our state.

Speaking of specialty foods, at the beginning of February, I had the opportunity to speak at the annual meeting of the South Carolina Specialty Food Association.

This statewide nonprofit seeks to further the South Carolina specialty foods industry through education, networking, marketing, promotional campaigns, and technical assistance. These folks are making and selling products that showcase the diversity of South Carolina food traditions, from sauces to snacks to sweets – and I told them how much I appreciate it. They're important to the Certified South Carolina program, as in many cases, specialty foods are a starting point for consumers to eat local and support their communities.

Keep making the choice to buy local food and support your neighbors. We'll get through this together.

## UPCOMING EVENTS

### 8<sup>th</sup> Annual Pig and Oyster Roast #shuck2020

February 20 • 12 – 4:30 pm

This year's oyster and pig roast tickets will allow you to stay with your group at designated tables to limit contact with people outside your social pod! We have 3 table choices: Chef Shed VIP Tented Tables next to the Chef Shed (\$95 per person), Pavilion Tables covered under our wood pavilion (\$75 per person), Uncovered Tables (\$65 per person). Optionally cover your table with a tent (\$125) Tickets will be very limited to only purchasing tables with your pod of 8-12. All tables require a minimum of 8 people. Tickets include oysters, shuckers, hot sauce, cocktail sauce, lemons, towels, napkins, crackers, bbq, sides, sanitizer, and live music. BBQ and sides will be delivered to each table throughout the event at 1 pm and 3 pm. Bars onsite accept cash and credit cards.

#### City Roots

1005 Airport Blvd, Columbia  
farm2tableevents@gmail.com



### The American Heritage Festival

February 20 • 10 am – 9 pm

February 21 • 10 am – 3 pm

The annual American Heritage Festival Revolutionary War Reenactment is back! Watch the reenactments, visit the merchants, and celebrate our history! In addition to the Revolutionary and WWII reenactments, there will be military vehicles, bi-planes, military encampments, and live music. General George Patton's grandson, George Patton Waters will be speaking. Come to Graham's Historic Farm, where Francis Marion's brigade staged attacks, brought British prisoners, and hid from Lord Tarleton. See how Marion earned his legendary name the "Swamp Fox." Enjoy the Patriot Games, which includes a hatchet-throwing contest, apple pendulum bayonet charge, and skillet toss contest. See the British and colonial encampments. Listen to Ed Forte speak on the birth of the Marines as well as Marion and Lee's siege of Fort Watson. Torch walk and Night of Lights display is scheduled for Saturday night.

#### Graham's Farm

843 McCutcheon Road, Lake City  
904-200-1232  
theamericanheritagefestival.com



### Certified Beginner's Beekeeping Course

February 20, March 6, 13, 20, 27 • 11 am – 2 pm

This course will be offered at an outdoor location with proper social distancing. The course is a series of classes, to prepare you to be a Certified SC Beekeeper. The fee will include a recommended beginner book, a membership with the WBA and a membership with the South Carolina Beekeepers Association. If you wish to take the Certified Examination at the end of the course, it is an additional \$10 paid to the South Carolina Beekeepers Association, at the time of the test. The test is NOT required to keep bees in SC. \$55.00.

#### Camden

wbabeekers@gmail.com  
watereebekers.com/product-page/  
beginning-beekeeping-class



### Girl Scout Daisy/Brownie Sense Badge

February 27 • 10:30 am – 12 pm

Come out to the Anne Springs Close Greenway to explore your five senses in nature. How rough is a tree's bark, what does that plant smell like, what birds do we hear? Get the most out of your hike by using all your senses. We will explore the Anne Springs Close Greenway using taste, touch, smell, hearing, and sight, giving ourselves the greatest experience possible. Will cover all components of the Senses Brownie Investigation Badge. Cost: \$12/ Girl Scout.

#### Anne Springs Close Greenway

#### Hampton Wildlife Fund Adventure Center

104 Adventure Road, Fort Mill  
803-547-4575 • info@ascgreenway.org  
ascgreenway.org

Tickets: [90082.blackbaudhosting.com/90082/  
Girl-Scouts---DaisyBrownie-Senses-Badge](http://90082.blackbaudhosting.com/90082/Girl-Scouts---DaisyBrownie-Senses-Badge)



## SALES & AUCTIONS

### Claxton's Auction

February 20 & 27 • 11 am

Every Saturday. Equine, cows, sheep, goats, pigs, camelots, ratites, poultry, and small animals.

18627 Low Country Hwy, Ruffin

Contact: William Claxton

843-909-4285 • [wlcjr@yahoo.com](mailto:wlcjr@yahoo.com)

### Yon Family Farms Spring Cattle Sale

February 20 • 11 am – 4 pm

Offering over 200 Angus, SimAngus & Ultrablack bulls ready for service and 75 head of females, including cow/calf pairs, bred cows & bred heifers.

318 Aiken Road, Ridge Spring

Contact: Lydia Yon

803-622-8597 • [lydia@yonfamilyfarms.com](mailto:lydia@yonfamilyfarms.com)  
[yonfamilyfarms.com](http://yonfamilyfarms.com)

## SCDA State Farmers Markets

#### SOUTH CAROLINA STATE FARMERS MARKET

3483 Charleston Highway  
West Columbia, SC 29172  
803-737-4664

#### GREENVILLE STATE FARMERS MARKET

1354 Rutherford Road  
Greenville, SC 29609  
864-244-4023

#### PEE DEE STATE FARMERS MARKET

2513 W. Lucas Street  
Florence, SC 29501  
843-665-5154

#### VISIT AGRICULTURE.SC.GOV

Click on the State Farmers Markets button for more information about each location

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2/18/21

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[agriculture.sc.gov/market-bulletin](http://agriculture.sc.gov/market-bulletin)

EDITOR Eva Moore

ADS & CIRCULATION COORDINATOR Janet Goins

GRAPHIC DESIGNER Stephanie Finnegan

## South Carolina Department of Agriculture Contacts

Commissioner's Office  
803-734-2190

Certified SC Program 803-734-2207	Hemp Farming Program 803-734-8339
Consumer Protection 803-737-9700	Livestock & Grain Market News 803-737-4621
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Fruit & Vegetable Market News 803-737-4497	Metrology Laboratory 803-253-4052

## The South Carolina Market Bulletin

(ISSN 0744-3986)

The Market Bulletin is published on the first and third Thursday of each month by the SC Department of Agriculture, Wade Hampton Building, Columbia, SC 29201. Periodicals postage paid at Columbia, SC 29201.

Postmaster, send address changes to:  
SC Market Bulletin, PO Box 11280, Columbia, SC 29211

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Ads are published free of charge and in good faith. The Market Bulletin reserves the right to edit and verify ads but assumes no responsibility for their content.

Ads cannot be accepted from agents, dealers, or commercial businesses, including real estate. Sealed bids, legal notices, or consignment sales are not accepted.

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- **Fax:** 803-734-0659

The deadline for submitting ads and notices is noon on Tuesday of the week **before** the publication date.

## NEXT AD DEADLINE FEBRUARY 23 • 12:00 PM







MISCELLANEOUS

**8' HAY RING**  
\$100; Rubbermaid 100 gal livestock water tank, \$50; head gate, \$150 Stan O'Neal Darlington 843-857-8236

**CATTLE WATER TUB**  
150 gal Rubbermaid, nvr used, \$100 Gordon Hill Anderson 864-617-5413

**10000 GAL TANK**  
used for water mixture, GC, need lowboy to move, fob Lancaster, \$1000 Richard L Bowers Lancaster 704-651-4734

**RND CEDAR POSTS**  
cut to var sizes, 4-10" dia, 6-12'L, \$6-12 each, depend on size; cut 4x4's, \$2/bdft Douglass Britt McCormick 864-391-3334

**TRACTOR PARTS**  
for '66 Ford 2000, water pump kit, hoses, thermostat, muffler, all new, \$65 Barney Williams Lexington 803-543-8715

**COMP FARM BELL**  
old, #3/\$350; ex lrg farm bell, w/wheel, comp, \$1200; #20 hash pots, \$200 each; #15, \$150; more Perry Masters Greenville 864-561-4792

**100 COLLAPSIBLE CRATES**  
for market, harvest & storage, mod 6425, open, 24"L x 16"W x 11"H, \$7 each obo John Mahon Chesterfield 843-910-7352

**55 GAL FG DRUMS**  
metal & plastic, open tops, lids & rings, \$15, \$20, \$25 each; 275 gal port tow tanks, \$50 each; more Philip Poole Union 864-427-1589

**DRIED PINE LUMBER**  
rough cut, 1" bds, 1x6, 1x8, 1x10, 1x12, 85¢/bdft Joel Grubb Calhoun 803-351-0144

**2 DUALS**  
18.4-34 tires/rims off a MF 285, FC, 12 over rim clamps & j-hook bolts, 6/side, \$750 Trent Porth Lexington 803-413-8065

**DSL WELDER**  
AC-DC Miller, 2500 low hrs, 50' of leads, \$6500 Stanley Taylor Chester 803-789-5236

**JD SPRAYER TANK**  
6500-6700, \$1000; JD sprayer pump 6500, new, \$750; sprayer pump clutch, new, \$400 Jeff Millen Chester 803-209-0893

**NURSERY POTS**  
used, 3 gal, 15¢ each, min 100 pots, lrg qts disc Judy Wicker Newberry 803-321-8311

**MIXED STEEL WHLS**  
25-40", \$50+ Watkins Martin Newberry 803-276-4475

**PINE OR HDWD**  
12"+ at base, at stump, \$7 each; birch, 100'T, \$3 each, pls speak loud & slow, deaf James Chavis Florence 843-659-2792

**4500" IRRIG SYSTEM**  
180 brass sprinklers, 2" pipe, pump & more, \$7800 John Faris Spartanburg 864-573-9311

**2 POLY STORAGE TANKS**  
each 5000 gal, \$2000 each Danny McAlhane Bamberg 803-793-7095

**CHICKEN LITTER**  
tractor trailer qts, \$450/load w/in 40 mi of Newberry Michael Wise Newberry 803-271-4215

**MARTIN GOURDS**  
\$4/lrg; \$2/med Donald Clamp Lexington 803-359-6809

**SAND CLAY & TOPSOIL**  
5 ton load, \$50/sand clay; \$75/topsoil, del w/in 20 mi David Wannamaker Calhoun 803-682-2117

**GREAT DANE MOWER**  
61" zero turn, \$3500 obo Otis Hembree Spartanburg 864-316-1222

**SULKY**  
for Gravley mod L, \$125 George Long Richland 803-920-3883

**OAK FIREWOOD**  
del, stacked, cut to size, full size p-up, Columbia areas, \$125 Ronald Wright Richland 803-606-1666

**2 COLE PLNTRS**  
& 2 fert distrib, mule drawn, GC, \$75 each Haskell Hughes Laurens 864-430-5559

**CHICKEN LITTER**  
bulk loads, 25 tons, \$450/load, spreading avail Don Bowman Abbeville 864-617-7253

**BAND SAWED LUMBER**  
2x6x12, \$7.20 each; 2x6x16, \$9.60 each; all other sizes, 60¢/bdft Jason Fogle Orangeburg 803-533-8703

**HONEYBEE NUCS**  
5 frame overwintered w/native Oconee Co queens, taking dep, avail Mar/Apr, \$175 Rick Dover Oconee 864-882-6938

**COOL CELL PUMPS**  
\$40; cool cell pads, 1'x6"x4", \$3 Larry McCartha Lexington 803-606-2499

**CEDAR MULCH**  
\$50/p-up load; Holly lumber, red & wht Oak lumber, \$2/bf; 4x4x8 cedar posts, \$5 each Andy Morris Newberry 803-276-2670

**REAR WHL WGHTS**  
for FA Cub, FA A-140, \$100/set obro; 50 uncut martin gourds, lrg, \$5 each Robert Yonce Aiken 803-685-7240

**100 BEAN STICKS**  
fiberglass, \$100 R Long Newberry 803-924-9039

**PURPLE MARTIN GOURD RACKS**  
hay rake umbrella design, 12 gourd hanger, \$45, heads only; 16 hangers, \$55 Pete Jordan Darlington 843-332-3219

**11x24.5 ALUM WHLS**  
BUDD, \$85; 5 gal buckets w/lids, \$1.85; 50 gal fuel tank, w/gauge, \$190; 250 gal fuel tank, \$265 F Rowe Newberry 803-271-7768

**21 SUITCASE WTS**  
100 lbs each, JD & IH, \$50 each; 6000 gal steel fert tank on skids, VGC, \$500 Charles Horger Calhoun 803-707-1493

**16 WOOD DUCK BOXES**  
9 ground nesting boxes, all used, \$40 each Kent Jewell Lancaster 803-320-3708

**JD LA115 RIDING MWR**  
8 y/o, eng in GC, \$375 Stephan Vernet Spartanburg 864-363-5800

**CARPENTER BEE TRAPS**  
to catch & dispose, lots of 5 for \$85 w/instr William Timmerman Aiken 803-640-6265

**10' OF COPPER PIPE**  
no bend or kinks, \$85 Danny Creamer Lexington 803-206-3279

WANT - LIVESTOCK

EACH AD MUST LIST SPECIFIC ANIMALS.

**2 F PEACOCKS**  
prefer white Tom Thornton Lexington 803-960-4068

**CALL DUCKS**  
any age Tyler Switzer Spartanburg 864-706-2389

**AUTO SEX KINGS PIGEONS**  
Swiss Mondane pigeons, Asil games, or any reasonably priced poultry Lynn Claxton Colleton 843-909-4285

**SWANS**  
peacocks, guineas, turkeys, duck, chickens Joe Culbertson Greenwood 864-229-5254

**INDIA BLUE PEACOCK**  
2 y/o M, reasonable, will trade guineas or game chickens Philip Poole Union 864-427-1589

**FEEDER CALVES**  
from farm, 500+ lbs Don Bowman Abbeville 864-617-7253

**CATTLE**  
beef or dairy Kenneth Satterfield Laurens 864-304-3172

WANT - FARM EQUIPMENT

**USED GREENHOUSE**  
Quonset style Clarissa Allaire Chester 803-579-1795

**1R CORN PICKER**  
needs little work is OK Steve Kyzer Lexington 803-608-0760

**12' FIELD CULT**  
& JD 7100 Plntrs Ray Ward Clarendon 803-473-3355

**JD MOD 40 OR M**  
preferably orig cond Ryan Watkins Lexington 803-331-7248

**ROLL OVER BAR**  
canopy, drawbar, & sway bars for 3600 ford Harold Wright Cherokee 864-838-4763

**7' 3PH SECTION HARROW**  
& 7' field cut w/with rolling basket Alan Chandler Williamsburg 843-382-7452

**AC FLAT BAR CULT SHANK**  
Lyman Fogle Orangeburg 803-247-2098

**FORD 2R PLANTER**  
Bobby Johnson Georgetown 843-264-8864

**LDR BUCKET**  
for MF243 w/1040 ldr, or quick attach bracket & ldr bucket Ed Schultz York 803-367-2370

**CASE IH 685 OR 695**  
low hr, GC, w/RB or cab Jeff Millen Chester 803-209-0893

**BLK SMITH ANVIL**  
& old bell, any size; hand crank corn sheller Larry Gunter Lexington 803-532-7394

**PINE SAWTIMBER**  
Pine Pulpwood & Hdwd, we cut sm or lrg tracts, 8A+ H Yonce Edgefield 803-275-2091

**DBL RING GAS BURNERS**  
used in old tobacco barns, fueled from below, not from the side Marshall Murdaugh Colleton 843-562-2252

**FIELDS OF LONG LEAF PINE STRAW**  
top prices paid, 15 yrs exp David Shull Lexington 803-318-4263

**BLKSMITH ANVILS & TONGS**  
wash pots, any size farm bells, syrup kettle R Long Newberry 803-924-9039

**USED REAR TIRES**  
for MF tractor #480-80-38 18-4R38 Josephus Cohen Beaufort 843-838-4422

**5V CRIMP TIN**  
no chicken house metal David Wannamaker Calhoun 803-682-2117

**SYRUP KETTLE**  
anvils, any size wash pots, old lighting rod w/balls & weathervane, lrg coffee grinder, more Perry Masters Greenville 864-561-4792

**GOURD POLE**  
to hang birdhouses Danny Creamer Lexington 803-206-3279



Looking for farm ad abbreviation meanings?

DOWNLOAD OUR HANDY REFERENCE LIST AT [AGRICULTURE.SC.GOV/MARKET-BULLETIN-POLICIES](http://AGRICULTURE.SC.GOV/MARKET-BULLETIN-POLICIES)

# 96% OF SC FARMS ARE FAMILY FARMS

## RESULTS NOW AVAILABLE FOR 2017 CENSUS OF AGRICULTURE FARM TYPOLOGY REPORT

BY JACQUELINE MOORE, USDA NASS

What do you think of when you hear the phrase “family-owned business”? You may not immediately think of the family farm, but they are just as important to our economy and communities. In fact, family farms account for 96% of all South Carolina farms, according to the 2017 Census of Agriculture Farm Typology report released in early February by the National Agricultural Statistics Service (NASS). These farms – 23,073 small family farms, 559 mid-size family farms, and 265 large-scale family farms – collectively produced \$2.71 billion worth of agricultural products in 2017.

Typology classifies all farms into categories based on two criteria – who owns the operation and gross cash farm income (GCFI). GCFI includes the farm producer’s sales of crops and livestock, fees for delivering commodities under production contracts, government payments, and farm-related income. USDA defines small family farms as those with a GCFI of less than \$350,000; mid-size farms have a GCFI of \$350,000 to \$999,999; and large-scale farms are those with a GCFI of \$1 million or more.

The typology report focuses primarily on the family farm. Why are typology data important? Because supporting South Carolina agriculture – the farms that feed our state, country, and the world – requires understanding its diversity. South Carolina’s 24,791 farms range from operations that can produce and sell \$1,000 of agricultural products in a year to multimillion-dollar enterprises. Trying to pinpoint meaningful characteristics of the “average” South Carolina farm from this alone would be misleading; important differences based on farm size and type might be overlooked. Typology allows us to better assess the health of South Carolina farms, the farmers who live and work on them, and the impact of policies by grouping operations into more homogenous categories.

These data show that family farms, defined as any farm where the majority of the business is owned by the operator and individuals related to the operator, remain the beating heart of American agriculture.

South Carolina small family-owned farms accounted for 39% of the value of all agricultural products sold in 2017, while operating 62% of the land in farms, according to the report. To continue supporting the small farms that give so much to our state, country, and the world, it is critical to have accurate data that are put into proper context to identify meaningful trends. That is where typology comes in.

More information about the 2017 Census of Agriculture Farm Typology report, including additional resources, such as Highlights and maps, are available on the NASS website at [nass.usda.gov/Publications/AgCensus/2017/Online\\_Resources/Typology](https://nass.usda.gov/Publications/AgCensus/2017/Online_Resources/Typology).

Visit [nass.usda.gov/AgCensus](https://nass.usda.gov/AgCensus) to learn more about the Census of Agriculture.

*Jacqueline Moore is South Carolina State Statistician for the U.S. Department of Agriculture National Agricultural Statistics Service (USDA NASS).*

## CLEMSON’S CAMPAIGN AGAINST INVASIVE BRADFORD PEAR ADDS NEW LOCATION IN SECOND YEAR

BY CLEMSON UNIVERSITY

Beauty is in the eye of the beholder, and Clemson University forest health specialist David Coyle says the damage wrought by the invasive Bradford pear tree far outweighs the allure of its white blossoms and shapely foliage.

Through its Bradford Pear Bounty program, Clemson Cooperative Extension is partnering with the South Carolina Forestry Commission, City of Clemson, City of Sumter and Duke Energy for upcoming events Feb. 27 in Sumter and March 13 in Clemson that give property owners the opportunity to exchange up to five Bradford pear trees for an equal number of free, native, young replacement trees.



“Bradford pears are common all over the Southeast; they’ve been planted for several decades now because they’re very pretty in the spring with those white flowers and sort of perfect lollipop-shaped green canopy,” said Coyle, an assistant professor in Clemson’s Department of Forestry and Environmental Conservation. “But they were once touted as sterile, and they’re actually not entirely sterile. If pollen from any other *Pyrus* species gets into that flower, it can make a viable seed.”

Those seeds are eaten by birds and spread across the southeastern landscape, contributing directly to one of the worst invasive plant species in the region — the Callery pear.

Not only do Callery pears have nasty thorns that can damage everything from tractor tires to livestock, but the damage they do to the ecosystem by crowding out native plants while providing little to no food for insects is just as bad.

In 2020, the first Bradford Pear Bounty was held at Clemson’s Nettles Park and over 260 healthy, native trees were doled out to replace Bradford pears in the city. On the heels of that success, Coyle said the decision was made to add a second location in South Carolina this year.

“Last year’s event went great. We had a lot of interest, and everyone who came had positive things to say,”

Coyle said. “Many people reached out to ask if it would be done again this year, and that was part of the reason we added a second city: because we had so much interest from all over the state.”

Coyle said a primary motivation for the event is to raise awareness around South Carolina of the invasive species and its harmful effects.

“We’re trying to get people to plant more native things in their yards that won’t become invasive on the landscape,” Coyle said. “If you want something with pretty flowers in the spring, there are plenty of native options. If you want bright red foliage in the fall, there

are native trees and shrubs with awesome-looking fall foliage, too.

The event in Sumter is set for Swan Lake Iris Gardens Heath Pavilion, located at 150 Garden St., while the event in Clemson will again be held at Nettles Park, 102 Nettles Park Road. Both are slated from 9 a.m.–noon.

Social distancing protocol will be followed for these outdoor events, which will be held rain or shine. Please prepare to have face covering at all times while in the Bradford Pear Bounty venue, remain at least 6 feet from others and use hand sanitizer upon entering the venue.

Criteria for participation in the program are:

- Pre-registration is required.
- Only the property owner can register and get the trees.
- Take a photo of yourself with the cut tree (a selfie, if you will) and bring it to the exchange event.
- Replacement trees will be distributed on a first-come, first-served basis while supplies last. If your preferred replacement tree is not available at time of distribution, you will be provided with a healthy alternative. Specific tree species cannot be reserved ahead of the event.

## SOUTH CAROLINA COMMISSIONER’S SCHOOL FOR AGRICULTURE NOW ACCEPTING APPLICATIONS FOR SUMMER 2021

PROGRAM SET FOR JULY 24-20

BY SCDA

Whether virtually or in person, the South Carolina Commissioner’s School for Agriculture will be held in 2021.

A partnership between Clemson University and the South Carolina Department of Agriculture, this summer program strives to provide challenging and enriching college-based experiences for a limited number of rising 11th and 12th grade students interested in agriculture and natural resources.

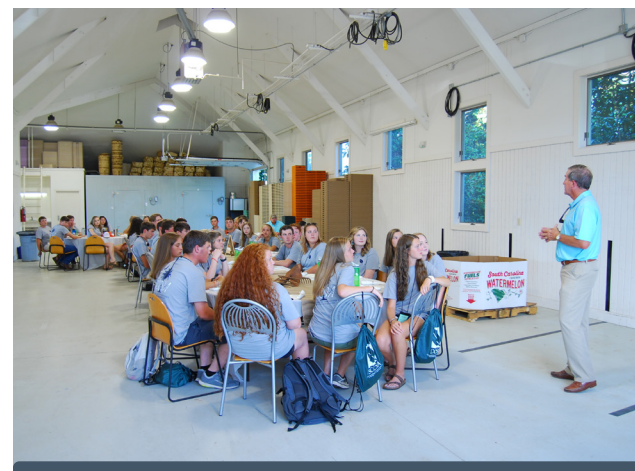
The program provides an academically focused curriculum that integrates subject matter from a variety of related disciplines, and includes farm visits, leadership activities and more.

Last year’s program was cancelled due to the COVID-19 pandemic. This year, the program will be held either virtually or in-person July 24–30.

The South Carolina Commissioner’s School for Agriculture application is live now. Applications are due by April 16, 2021.

Students will be able to choose among several emphasis areas: Livestock Production, Forestry and Natural Resources, and Plant Science.

To find out more about the program and to apply, visit [clemson.edu/cafls/sccsa](https://clemson.edu/cafls/sccsa).



Commissioner Weathers speaks to the 2019 Commissioner’s School class during a farm-to-table dinner.

# CLEMSON RESEARCHERS DISCOVER BIOMARKERS NEEDED TO HELP PEANUTS BEAT THE HEAT

BY DENISE ATTAWAY, CLEMSON UNIVERSITY

CLEMSON, S.C. – Heat stress caused by climate change is threatening to reduce peanut crop yields and burnout this source of income and food for millions of people worldwide.

But a group of researchers led by Clemson University Plant and Environmental Sciences assistant professor Sruthi Narayanan is working to develop heat-tolerant peanut varieties they hope will help maintain peanut production and profitability. Their latest venture focuses on how lipids (fats) in peanut plant anthers are altered by heat stress.

“Understanding these changes will aid in understanding the mechanisms of heat tolerance and help us determine how to develop heat-tolerant peanut varieties,” Narayanan said.

Peanuts are grown on about 42 million acres worldwide. They require temperatures of at least 56 degrees, with 86 degrees the optimal growing temperature. Higher temperatures can hurt yields. The Earth’s average yearly temperature has increased 2 degrees since the pre-industrial era of 1880-1900. This extra heat is driving up regional and seasonal temperatures, reducing snow cover and sea ice, intensifying heavy rainfall and changing habitat ranges for plants and animals.

Lipids provide energy for plant growth and survival. Anthers are plant male reproductive organs that produce pollen, which is transported to the stigma of the female reproductive organ in the flower, pistil, for pollination to occur and plants to reproduce.

“Reduced pollen production and viability are the major reasons for loss of peanut yields when heat stress occurs during the flowering stage,” said Zolian Zoong Lwe, a former Clemson master’s student who conducted the study under Narayanan’s guidance and is now a doctoral student at Kansas State University. “Understanding the mechanisms underlying the decrease in peanut pollen performance during heat stress will help develop tolerant peanut varieties.”

This study, funded by the National Peanut Board and the South Carolina Peanut Board and supported by the United States Department of Agriculture National Institute of Food and Agriculture (USDA-NIFA), began at Clemson in 2018. It involved six varieties – Bailey, Georgia 12Y, Phillips, Sugg, Tifguard and Wynne – and one breeding line, SPT06-07.

“These varieties were selected so that the study would have a range of sensitive and more heat and/or drought-tolerant cultivars,” said Dan Anco, one of the study’s researchers, as well as Clemson Extension peanut specialist and assistant professor housed at the Edisto Research and Education Center (REC) in Blackville.

Test varieties were grown in fields at the Simpson Research Farm, following field operation recommendations in the Clemson Peanut Money-Maker Production Guide. The plots received just rainwater, no irrigation. No pests nor pathogen problems were detected.

Heat tents were used to heat-stress the plants for 17 days in 2018 and 18 days in 2019. Lipids were extracted from anthers in flowers collected from the plots. Researchers found heat stress caused changes in lipids needed for the plants to reproduce. The study identified lipid metabolic traits associated with heat tolerance.

“This discovery is useful in determining lipid biomarkers (measurable/observable changes) that have important applications in breeding climate-resilient varieties,” said Sachin Rustgi, a plant breeder at the Clemson Pee Dee REC in Florence who also is part of the research team.

Other researchers involved in the study are Salman Naveed, a doctoral student at Clemson University and Ruth Welti, a biology professor at Kansas State University.

A paper about their study was published in the Scientific Reports journal’s Dec. 17, 2020 edition of Springer-Nature.

Peanut is one of the Top 10 crops grown in South Carolina. The latest figures from the United States Department of Agriculture National Agriculture

mainly a regional food associated with the southern states. After the war, peanut demand increased. Better equipment for production, harvesting and shelling, as well as processing, contributed to expansion of the peanut industry.

Significant advances in the peanut industry came from George Washington Carver, a man born into slavery on a Missouri farm who went on to earn bachelor’s and master’s degrees in agricultural sciences from what is now Iowa State University. He was a botany professor and researcher and became director of agriculture and, later, director of Research and the Experiment Station at the Tuskegee Normal and Industrial School Institute, now known as Tuskegee University, in Alabama. Carver is credited with developing more than 300 products from the peanut plant, such as peanut-based ice cream, shampoo, dyes, paints, and more.

While at Tuskegee, Carver developed the Jesup Agricultural Wagon, a mule-drawn carriage outfitted with tools and necessities to help farmers. He drove the carriage out to farms to bring research-based instruction, demonstrations and supplies so that farmers could learn new ways to

plant crops and use new farming tools. The USDA reports Carver reached an average of 2,000 people per month during the first summer he drove the wagon to farms.

When the Smith-Lever Act was passed in 1914 and a National Extension System was formed, the “Farmers’ College on Wheels,” as the mobile school was sometimes referred to, received additional funds to include a female home demonstration agent to ride along and bring additional information to women in the rural areas. During all visits, instructors distributed pamphlets from the

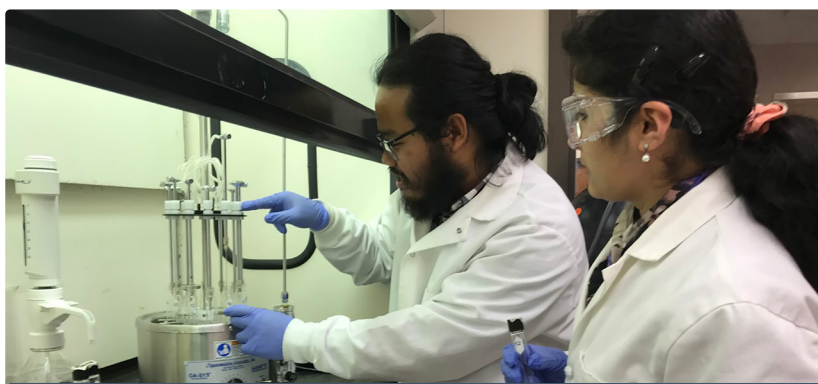
Tuskegee Institute with information about farm production, nutrition, and health. In 1923 the wagon was replaced by a truck and was renamed the Booker T. Washington Agricultural School on Wheels.

Carver earned the nickname “Peanut Man” after appearing before the U.S. House Ways and Means Committee in 1921 to speak about peanuts. Soon, the whole country knew about George Washington Carver. By 1940, peanuts had become one of the Top 6 crops in the U.S.

In 1923, Carver was the first African American lecturer at Clemson University, addressing cadets in the main building chapel. Letters he wrote to a Clemson cadet can be found in the Clemson University Libraries Special Collections, located in the Strom Thurmond Building on the university’s main campus. Special Collections and Archives are currently under modified operations. For information, email [archives@clemson.edu](mailto:archives@clemson.edu).



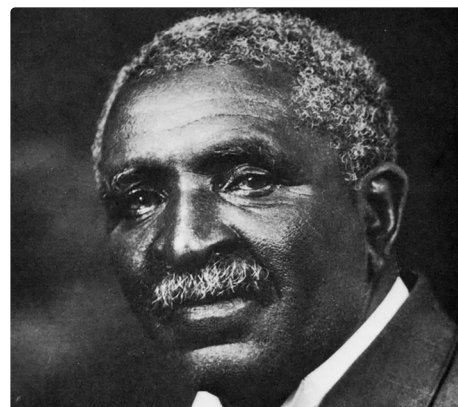
Clemson assistant professor Sruthi Narayanan and graduate student Zolian Zoong Lwe study how heat stress affects peanuts as they work to develop heat-tolerant peanut varieties.



Clemson researchers Sruthi Narayanan and Zolian Zoong Lwe extract lipids to determine how lipids (fats) in peanut plant anthers are altered by heat stress.



The mule-drawn carriage George Washington Carver drove out to farms to share agricultural information with farmers was replaced by this truck in 1923. Photo courtesy of Tuskegee University



George Washington Carver

Statistics Service (USDA-NASS) show 62,000 acres of peanuts with a production value of more than \$46 million harvested in the state in 2019. For 2020, the South Carolina Peanut Board reported the state had 522 peanut farmers who planted 82,000 acres and produced 278 million pounds of peanuts.

South Carolina Commissioner of Agriculture Hugh Weathers said studies such as this are important in helping promote the state’s economy.

“I’m proud that South Carolina has become one of the leading peanut-producing states and I’m committed to supporting the expansion of this industry,” Weathers said. “Peanuts are a crucial part of agribusiness’ \$46 billion annual economic impact in the state.”

## THE PEANUT MAN

Peanuts are believed to have originated in South America. Information from the American Peanut Council shows commercial peanut farms could be found in the United States in the 1700s and 1800s.

Peanuts were not extensively grown here because it was regarded as food for the poor. In addition, growing and harvesting techniques were slow and difficult. Until the Civil War, peanuts remained

*This study is funded by the National Peanut Board Grant No. 2012637 and South Carolina Peanut Board Grant No. 2012613. This work also is supported by the USDA-NIFA, Hatch/Multi-State Project 1013013.*