

## Desperate houseplants

People with a natural “green thumb” always amaze me. My mother-in-law, for one. I was at her house the other day and could not help but envy her houseplant collection. Until recently, if you visited my home, there were no houseplants. If you visited my office, there were no houseplants. Past history has shown I cannot keep a houseplant alive. Now that I’m the proud owner of three houseplants, and babysitting two more, I’m turning over a new leaf and coloring my own thumb green!



REACHING OUT

KERRIE ROACH

Houseplants are tricky. There are many factors that go into caring for a healthy houseplant. Water, light, fertilization and container size are the four main limiting factors for houseplants. I usually manage to mess up one or more of these, whether it is too much or too little. In my case, it is most often too little, too late.

I used to have cuttings from a wandering jew, *Tredecantia zebrina*, in my windowsill behind my desk. After the third or fourth time of reviving them from the brink of death, I decided to leave it to the experts. I know, you are probably laughing right now. I paid a lot of money for my education to be that expert, but that does not always mean I remember to do all the things that I know I should! So for the sake of all those people out there like me, keep reading for the four keys to healthy houseplants.

Water is the No. 1 killer of all houseplants, and contrary to popular belief, it is too much water that most often kills houseplants. The majority of houseplants should be allowed to dry out in between watering. Use your index finger as a moisture sensor. If the soil in the pot is damp at a depth of approximately one inch, don’t water. If it is dry, water away. Make sure that when you water, there is a drain in the bottom of the pot. Without a drain hole, the water will pool at the bottom, and the plant’s root system will begin to quickly decay. Consistently moist soil is also an invitation for fungus gnats.

Light requirements for houseplants are very important. Make sure that you select the right plant for the right place in your house. If you do not have much light, try a snake plant, *Sansevieria trifasciata*. For direct sun areas, you may have better luck than I did with the wandering jew.

Fertilization is crucial to plant health. With limited root systems and space, houseplants need fertilization to ensure they have access to vital plant nutrients. Check the label on your plant for specific requirements. Fertilizer can be added easily through potting soil, water soluble additives, fertilizer stakes, and/or pelletized fertilizer.

The last and most often forgotten key to houseplant health is container size. Check the root system on your plants every couple months. When removed from the pot, if roots are seen circling the outside edge, it is time to move to a larger container. Loosen the circling roots and replant into a larger container with plenty of room to expand.

I hope that these four keys to healthy houseplants will help you on your way to houseplant glory. Now if only I could remember to turn around once in a while and water mine!

IF YOU have any questions or comments, contact me at (864)784-5640 or [kwalker@clmson.edu](mailto:kwalker@clmson.edu).

# Liquid learning

## Monthly forum serves up sips and science



“Science on Tap” attendees listen to Bill Pennington’s talk Thursday night at the Viva Wine Bar in Pendleton.

COURTESY CLEMSON UNIVERSITY COLLEGE OF SCIENCES

BY JASON EVANS  
THE JOURNAL

PENDLETON — If you were expecting a staid, sedate scientific discussion at “Science on Tap” at the Viva Wine Bar Thursday evening, you were in the wrong place.

During Clemson University chemist Bill Pennington’s talk, phrases such as “This molecule acts like a musk ox” and “I don’t think we want any explosions” and “naked, featherless chickens” were tossed around.

“Science on Tap” is a monthly forum started by Clemson University Life Sciences outreach director Vicki Corbin. She said she started “Science on Tap” for a couple of reasons.

“The main one is that too many people think that science is boring, or that it doesn’t apply to them or that they don’t have the brains to understand it,” Corbin said. “But if science is presented right, it can be understandable and fascinating to most people.”

“The other reason is that taxpayers pay for a huge proportion of the research done in this country, and they have the right to understand it,” she continued. “The results and ramifications of the results should not be restricted to scientists



‘Hopefully, this will go OK. If it doesn’t, just drink up.’

Bill Pennington  
Clemson University chemist

or people who speak scientific lingo. Scientists, in my opinion, have the responsibility to make their research results understandable to the public.”

Attendees enjoy wine, beer and food while listening to a different guest speaker each month.

“You sit down and you listen to some cool science, ask questions and hopefully learn and have a good time,” Corbin said.

Thursday’s meeting was the first of 2018 and the first at the forum’s new home at the Viva Wine Bar in Pendleton.

“Hopefully, this will go OK,” Pennington said. “If it doesn’t, just drink up.”

His talk was titled “I Knew I Should Have Picked the Blue Pill.”

“I’m not really sure what that title means,” Pennington confessed.

He spoke about the clean aspects of his research — working with crystals — and the dirty.

“What I really am is a crystallographer,” he said. “I love crystals. I love looking at crystals. I love the flat faces and the sharp edges of a crystal and the properties of a crystal.”

“You sit and you look at these beautiful, clean crystals through microscopes,” he continued. “It’s pristine, it’s pure. Everything’s clean. It’s wonderful. That’s what I used to do.”

That brings us to the naked chickens.

He and a team that includes professors from Clemson, Furman and Ben-Gurion University, as well as Clemson graduate and undergraduate students, have been developing biosensors that are useful in food safety.

“We started working with chickens,” Pennington said. “Chickens are not clean. They’re dirty, messy and smell.”

They were tasked to monitor the health of a poultry

processing plant.

Bacteria can burrow down into chicken skin and re-emerge even after chicken carcasses go through a scalding process, Pennington said. That can lead to outbreaks of *E. coli* and other problems.

“Cross-contamination is the big thing,” he said. “We wanted to help and identify whether these things are clean or not.”

Before the team came in, the plant had developed featherless chickens. That has some advantages — featherless chickens produce less heat, reducing cooling costs at the plant.

But chickens use their wings as part of mating rituals.

Featherless chickens “don’t know how to date,” Pennington said.

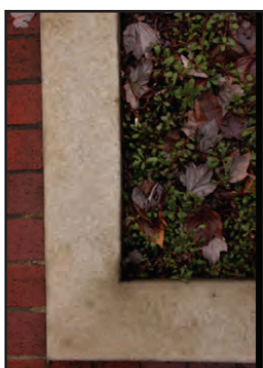
Another problem is chickens use their wings to get up after falling down. Featherless chickens can’t do that, which was leading to deaths in the plant.

His team developed biosensors that have “really interesting properties,” Pennington said.

The polymer chain making up the sensor is “blue jean blue” and reactive to heat, he said.

SEE SIPS AND SCIENCE, PAGE B2

# live. shop. bank.



IT'S ALL ABOUT COMMUNITY

# SIPS AND SCIENCE: Group meets second Thursday of each month

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Biosensors that react to extreme heat are used in labeling military rations or MREs.

“If it goes too high, the food goes bad,” Pennington said. “If you have a label that turns red, you don’t eat that food.”

Other biosensors can detect liquid and bacteria and turn red when they do.

“It’s the interaction of the bacteria that’s going to trigger the color change,” Pennington said. “That’s a way to determine the bacteria is there.”

Pennington brought examples of the biosensors and demonstrated the heat reactions for the audience.

The sensors can be sprayed on food prep surfaces, such as those in processing plants.

“If it’s nice and blue, send the chicken carcass off to the grocery store and somebody can buy it and probably they

won’t get sick,” Pennington said.

The biosensor could also be used in packaging. The color change would alert consumers immediately that the chicken has become contaminated, either at the store or in the home fridge.

More sensitive sensors could allow for bacteria to be detected and identified much more quickly, aiding in recall efforts.

A lively Q-and-A session was held after the talk.

“Science on Tap” meets the second Thursday of each month in Pendleton and Greenville. Coffee Underground hosts the Greenville meetings. Both meetings begin at 6:30 p.m.

For more information, visit [clemson.edu/culsoc](http://clemson.edu/culsoc) or [facebook.com/ScienceonTapUpstate](https://facebook.com/ScienceonTapUpstate).