

Santa Fe Extension Master Gardeners Newsletter

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A History of Soil Testing in the Garden at El Zaguán By Ruthbeth Finerman



Planning a garden without soil testing is challenging, since it is unclear how soil structure and nutrient conditions might impact plant growth. Imagine, then, the daunting invitation to restore a treasured historic garden that's undergone 170 years of cultivation and change. Fortunately, multiple tests provided an informed foundation for today's lush vegetation.



In 2012, the Historic Santa Fe Foundation invited SFEMG to restore its garden at El Zaguán on Canyon Road. Initiated in the 1850s-1890s by Jesusita and James Johnson, the Victorian flower garden beloved by locals had suffered from neglect, disease and climate change stresses. To be successful, master gardeners needed to understand the parcel's planting history and current soil health.



A first step was to review a 1991 analysis of the garden's pollen and phytoliths —fossilized tissues and minerals left by decayed plants. Commissioned by the Foundation to build the property's archaeological and historic record, the study found multiple soil levels in the parcel. The deepest layer comprised undisturbed soil and pollen from native piñon, juniper and oak that likely predated cultivation. A 100- to 150-year-old middle layer from the Johnson era introduced an array of cultivated ornamental flowers, grasses and shade and fruit trees, while pollen from the contemporary surface confirmed the presence of diverse native and imported flora (Cummins, 1991). Another interesting report claimed that the rich middle layer was created by transporting topsoil from a riverbed and mixing it with manure, likely taken from the Johnson's stables (Barcan, 1993).

Top to bottom: a virtually barren garden, possibly during the day of the soil test; early soil building and initial planting of a highly depleted garden; a flower-packed garden. Photos by former project leader Nyla Rasmussen.

Project leaders recognized soil testing as key to selecting successful new plants. In April 2013 they used a soil test kit on dry samples taken from surface and root levels in multiple locations. Tests showed a pH of 8.0. Plants tolerate such alkaline soil, but it can restrict micronutrients like iron, phosphate and manganese, which risks stunting and chlorosis. Findings also suggested different

Sunday, March 13 11 12 1 10 9 3 8 4 7 6 5 SPRING FORWARD

Daylight Saving Time Begins

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Our Mission

Santa Fe Extension Master Gardeners is a nonprofit volunteer organization whose mission is to learn, teach and promote locally sustainable gardening through reliable, current research-based practices.

sfemg.org

SFEMG is one of more than a dozen county-based Master Gardener programs run under the auspices of New Mexico State University's College of Agricultural, Consumer and Environmental Sciences.

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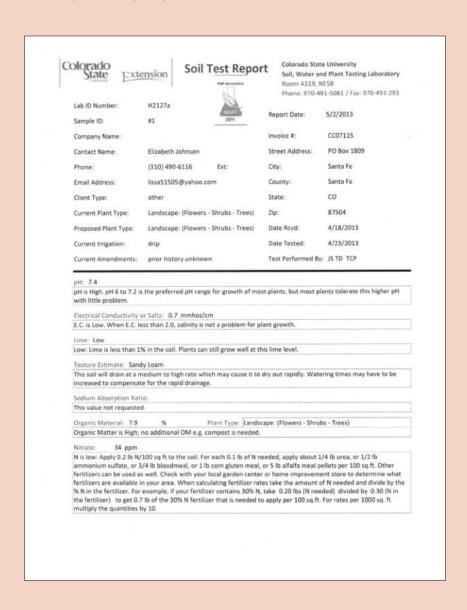


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nutrient imbalances between beds. To learn more about the garden's soil texture and fertility status, they sent samples to the Colorado State University Soil, Water and Plant Testing Laboratory. The lab found that a century of fertilization had left many beds high in organic matter and most nutrients but detected deficient nitrogen and offered detailed recommendations to build the soil. The SFEMG team used these findings to plan a series of interventions: trees would receive protein crumbles and a fertilizer high in nitrogen and potassium, flower beds would be treated with nitrogen-rich bat guano, horse manure would be spread near a struggling border and leaves would be left in place in fall. Project leaders also resolved to hand level an eroded sector, till and dig in compost in compacted areas, and install irrigation and a berm to harvest rainwater. These efforts, along with a 2017 exercise in sheet mulching, contributed to today's garden, packed with historic shrubs and trees, and more recent additions of water-saving ornamental plants. A June soil testing workshop will update information and ensure that the garden continues to flourish.

References:

Barcan, D. Bandelier Garden Restoration. *Victorian Homes* 12(1): 58-61, 1993. Cummins, Linda Scott. *Pollen Analysis of the Bandolier Garden at El Zaguán, Santa Fe, New Mexico*. PaleoResearch Laboratories, Denver, CO, 1991.



Soil Tests for the Home Gardener

Check all that apply:
\Box I just moved to Santa Fe County from another part of the country and want to establish a healthy ornamental garden at my new home.
☐ I just moved, and the yard at my new house was neglected for many years before I bought it. What can I do to help new plantings thrive?
\Box I'd like to start a vegetable garden and/or a fruit orchard and will be starting from scratch in an undeveloped portion of my yard.
\Box I'm having trouble with plants in a certain area of my yard. There are signs of disease and the leaves on my plants are turning yellow.
When discussing gardening in this semi-arid steppe with cold winters, it's not uncommon to hear references to "poor soil" or even "that brown stuff here that passes for soil." Winds, UV radiation, low humidity, low rainfall, high alkalinity and salt content combined with low organic matter make for poor soil structure.
If you checked any or all of the above statements, you might want to consider getting your soil tested before you invest in any new plantings. If you know what you're working with, you will be better positioned to develop a plan for amending your soil and creating a healthier growing medium.
Santa Fe County Extension Agriculture Agent Tom Dominguez recommends collecting your soil samples in the fall or late winter so you can work on remediation prior to the growing season. "Soil testing is mostly always right for everyone wanting to plant or grow something. Even in a native-type scenario — that is, where you already have mature plantings or plantings underway — it's always good to know what you have in terms of soil properties."
Dominguez recommends you start by reading NMSU Extension Guides A-114: " <u>Test Your Garden Soil</u> " and A-146: " <u>Appropriate Analyses for New Mexico Soils</u> ."
Santa Fe County doesn't have its own soil testing laboratory so instead recommends using the Soil, Water,

You will need to fill out the "Horticulture Soil Submission Form" and send your soil sample along with a check for the requested test(s) to the address shown on the website. Prices are subject to change, but a complete soil analysis currently costs \$35. Dominguez says the results you receive will be easy to read and tailored for home gardeners. In any case, you can call the Santa Fe County Extension Office at (505) 471-4711, and Dominguez can help you decipher the results and share general best practices for improving

and Plant Testing Laboratory at Colorado State University. The <u>Laboratory's comprehensive website</u> tells you how to take a soil sample for analysis. It takes about two weeks to get results after your soil samples

have been received. The Laboratory does not test for pesticide or herbicides.

your soil.

"In the spring, at the end of the day, you should smell like dirt."

— Canadian author Margaret Atwood from her book *Bluebeard's Egg*



A Message from SFEMG Board President Wendy Wilson

When the Santa Fe Extension Master Gardeners (SFEMG) get going, WE GET GOING! Planning is underway for all of <u>our projects</u> for the 2022 growing season.

The Vegetable Garden has a new leader: Patricia Pearce. The Cornell Rose Garden also has a new leader, Eugenia Parry, and Stephanie Deutch has stepped in as the Education Coordinator. As always, our members are stepping up to maintain and enhance horticulture education in Santa Fe County. SFEMGs are your source for all things gardening. I encourage you to visit the rose garden as well as our Demonstration Gardens at the Santa Fe County Fairgrounds and our gardens at the Randall Davey Audubon Center and El Zaguán on Canyon Road. All are beautiful and so informative. Gardening in Santa Fe is challenging. We can help you!

Got gardening questions? Santa Fe Extension Master Gardeners and interns volunteer to research and answer questions, diagnose problems and provide solutions for the home gardener. You can reach us by phone, online or talk with us in person!

Our volunteer Santa Fe County Extension Hotline assistants respond to calls received on the Master Gardener Hotline at (505) 471-6251 March through October. We are in the office several hours a week and will respond as soon as we are able, so please leave a message.

You can ask a question online year-round at https://www.sfemg.org/gardening-questions

Finally, there will be many opportunities for you to "Ask A Master Gardener" around town this growing season. Stop by the following locations

to meet Master Gardeners and interns and ask them your gardening questions. We love to get pictures, samples and "stump the chump" questions! Our schedule for 2022 currently includes:

Reunity Resources 9 a.m. to noon Saturdays beginning April 30 at 1829 San Isidro Crossing, Santa Fe

Eldorado Farmers' Market 3 to 6 p.m. Fridays at the La Tienda Shopping Center, 7 Caliente Road ... schedule to be announced at a later date

The Farmers' Market at the Railyard: 8 -11 a.m. Saturday mornings **beginning June 3** at 1607 Paseo de Peralta, Santa Fe

<u>Santa Fe Farmers' Market Del Sur</u>: 3-6 p.m. Tuesdays **beginning July 5** at 4801 Beckner Road, Santa Fe

<u>SFEMG Seed Stewards</u> – 10 a.m. to noon **Saturdays March 26-April 30** at the Santa Fe Public Library Southside Branch, 6599 Jaguar Drive, Santa Fe

Other important and interesting projects managed by the SFEMGs:

Santa Fe Compost Action Team (SCAT) The retiring project leaders — Kathleen Morse, Vicky Jacobson, Linda Hinckley and Diane Pratt — are revamping the Master Composter Volunteer Training course. Beginning this spring, two graduates of the 2021 SFEMG Intern Training Program will lead public education sessions on home composting at the Demonstration Gardens and at various public events throughout the year. Another Master Composter training course will be offered in the fall.

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<u>The Garden Journal Radio Program</u>, led by Christine Salem and Tom Dominguez, airs each Saturday from 10 to 10:30 a.m. on KSFR 101.1. The program is a compendium of interviews, advice and inspiration for home gardeners throughout Santa Fe County.

The <u>Santa Fe Public Spaces Tree Inventory</u>, led by Athena Beshur and Alexandra Schroeder, works with the Santa Fe Municipal Tree Board to inventory city-owned trees, beginning with those in city parks. SFEMG works with the city and community volunteers to collect species, diameter, condition and location data, while learning to identify trees and pests that afflict the trees and troubleshooting factors influencing tree health.

We are here to help you. Happy Spring!



Available March 14! 'Mountain Flora' Forever Stamps

Celebrate the beauty of mountain wildflowers with four new stamps. Each stamp in the block of four includes an illustration of one of these flowers: a purple pasqueflower (Anemone patens), an orange-red wood lily (Lilium philadelphicum), a bright yellow alpine buttercup (Ranunculus adoneus), and a dark pink Woods' rose (Rosa woodsii).

Source: USPS.com

Ornamental Grass Maintenance Story and photo by Peggy Rudberg



New Mexico has over 400 species of grasses. Depending on when they are active, they are called either cool season or warm season grasses. Cool season grasses generally begin growth when soil reaches 40-45 degrees Fahrenheit, become dormant but retain their color in summer, and grow again in fall. Warm season grasses begin growth when soil reaches 60-65 F and become dormant as weather cools in fall.

Grasses have multiple uses in landscape design, attract few pests and are generally hardy. Most are water-efficient perennials and will thrive in a variety of poor soils as long as the soil is well drained. Despite low maintenance, thinning or moderate trimming will help them stay vibrant and keep their shape. Dividing controls them when they become too large.

To thin dense foliage comb the grass with a gloved hand or small rake to remove dead blades. Trimming or cutting back can take place after foliage has died in the fall or before new growth begins in the spring. While seed heads feed winter birds keep in mind that large areas of dead grass can be a fire hazard.

For grasses with overflowing foliage bundle them before trimming, securing bundles with tape, twine or bungy cords. In fall or late winter, use sharp shears to cut back cool season grasses by two-thirds — not to ground level. Indian ricegrass (*Achnatherum hymenoides*) and feather reed grass (*Calamagrostis x acutiflora* 'Karl Foerster') are examples of cool season grasses. Warm season grasses can be cut back all the way to the ground in fall or mid to late spring, except when flowering. Little bluestem (*Schizachyrium scoparium*) and Indiangrass (*Sorghastrum nutans*) are warm season grasses. The Santa Fe Botanical Garden has over a dozen ornamental grasses you can see in situ.

If a grass is overgrown you may wish to divide it and gain additional plants for your garden. Certain species may require dividing every few years if their growth is from the center out with new growth on the outer edges. This leaves a hole in the middle and creates an unsightly plant. Dividing grasses should take place in late winter to early spring after the ground has thawed. This gives the plant time to reestablish a root system before the heat of summer. If you are going to relocate a section of the divided grass to a new place in your garden, prepare your new site first by loosening soil and digging a hole. A day or two before you plan to divide a grass, water the plant and surrounding soil to about 6-inch depth to soften soil.

To make your work easier, cut foliage on large grasses back as in trimming before dividing. Then dig a circle 8 or 9 inches deep several inches out from the grass clump. Pry the entire root ball out of the ground. You may want to have a tarp ready to create a workspace that captures loose dirt and provides a carrier for moving the plant portions. Try to work in the shade to prevent roots from drying out. Depending on size of clump divide into two or more equal parts at least 3 inches in diameter. Small plants might be pulled or pried apart easily but larger ones will require cutting with a sharp knife, ax, saw or spade. Begin cutting from the bottom of the root ball. Remove any dead center. Trim off any dead roots and replant immediately or protect roots with a cover. Plant portions in holes up to twice as large as the root ball, backfill adding compost or fertilizer if you wish and water to 6-inch depth. Add 3 inches of mulch but don't crowd the base of the grass. Water as you would a new plant for the first summer. By fall the plant should have become established.

Resources:

"How to Cut Back Ornamental Grasses"

"How to Divide Ornamental Grasses for Replanting"

Backyard Bugs

Who ate that leaf? Katydid. Story and photos by Pam Wolfe

Greater Angle-wing Katydid (*Microcentrum rhombifolium*)

Order: Orthoptera | Family: Tettigoniidae





Microcentrum rhombifolium on Iris (left) and Katydid eggs parasitized by a Eupelmid wasp

These herbivores make a living in deciduous trees and shrubs in varied habitats. The Greater Angle-wing measures 52-63 millimeters and is difficult to distinguish from the Lesser Angle-wing (*Microcentrum retinerve*), which measures 44-53 *mm*, unless you can get a close look at the pronotum: the leading edge is distinctly toothed on the Greater but smooth and straight on the Lesser. We rarely see them — in part because of their preference for the upper canopy, in part because of the intense green color and leaf mimicking wing structure — but according to <u>Bug Eric</u> their <u>song</u> is audible on summer evenings throughout their range.

The vivid green nymphs emerge in summer and pass through four instars to reach adulthood. The male is equipped with a file and scraper on his front wings, a method of sound production called stridulation. He produces a calling song and a courtship song, which females hear through auditory organs on their front legs. Eggs are deposited in a neat shingle-like row on a twig or the edge of a leaf in late fall. Adults are prey for many other animals, including Sphecid wasps, and rarely cause noticeable damage to the foliage they inhabit.



Native or Not? By Laurie McGrath

At the Native Plant Society State Conference in August 2021 there was a panel discussion: "What is a Native Plant?" One panel participant, botanist George Miller, raised the issue of native host plants vs. cultivars. His concern was whether a cultivar could negatively modify the native gene pool so that host plants would provide reduced ecosystem services over time for the creatures that rely on them.

This is a question that appears to be highly debated. But first, what is a cultivar? Varieties can be naturally occurring such as thornless honeylocust. A cultivar is a cultivated variety of a species, i.e., the traits are preserved through manipulation and propagation that is usually done vegetatively such as grafting or tissue culture. An example of a cultivar is a Fuji apple. It is a cross between two other varieties of the *Malus* species, Red Delicious and Rails Genet, that is now popular throughout the world.



Scutellaria x 'Dark Violet' hybrid Scutellaria, with Santa Fe Phlox (Phlox nana) in the SNaPP Native Plant Demonstration Garden at the Extension Office Photo by Pam Wolfe

Hybrid plants also raise concerns. A hybrid can emerge randomly in nature. But many are intentionally created by humans. In the trade, plant breeders cross pollinate specific plants using a controlled process in an effort to bring out desired characteristics. Once the resulting seed yields consistent results the plant is often patented. Unlike an open pollinated plant, the seeds from these hybrids will not reliably produce a plant with the same characteristics. Sometimes within an open pollinated population a variant will emerge that becomes an exciting new discovery. *Agastache* hybrid "Desert Sunrise" is a favorite of mine, introduced by horticulturist David Salman. A cross between two other *Agastache* varieties, *cana* and *rupestris*, it combines traits that have made it one of the most popular xeric plants in our area.

What happens when hybrids or cultivars are mixed with native plants? Native plants have an evolutionary history that is not comparable to the history of human-created hybrids and cultivars. So, the question is how the influences of these new introductions play out in the ecosystem over time. Hybrids can exhibit wonderful characteristics such as pest resistance or heat tolerance. But can that pest resistance deter an insect that relies on plants of that species for survival?

There are many questions, misconceptions and divergent views on this topic. I highly recommend a very readable article from the University of Maryland Extension titled "<u>Cultivars of Native Plants</u>."

Assumptions are paired with responses that offer pros and cons but not ultimatums. For example, the statement "The most important performance yardstick is how often pollinators visit cultivars in garden trials" is addressed by pointing out that if pollinators require native plants but a cultivar interferes with the natural balance within that ecosystem it is not ultimately beneficial.

Clearly, careful study and observation are warranted and the research is ongoing. But as Kathleen Hall, an Albuquerque member of the Native Plant Society conference panel, pointed out, "Nonnatives are not the Evil Empire coming to take over (mostly); they're just plants we need to think about in our landscapes, make thoughtful decisions on their use, and continue to educate our neighbors."

Additional resource:

"<u>Variety, cultivar, hybrid, heirloom ... what terms mean</u>" by Elizabeth Extrom, *Husker Hort*



Calendulus seeds

The Santa Fe Seed Library Re-opens March 26 Story and photo by Christine Salem

March 26 marks the re-opening of the Seed Library at its original location at the Santa Fe Public Library's Southside Branch on Jaguar Drive. The Seed Library, operated by the SFEMG Seed Stewards, houses thousands of open-pollinated vegetable, herb and flower seeds donated by local growers and commercial seed companies. Patrons may "check out" up to five packets at no cost. As part of the mission to support genetic diversity through seed saving and sharing, we encourage patrons to return part of their harvest to help increase the library's locally-grown, locally-adapted seed offerings.

The Seed Library is open during the Library's regular hours: from 10 a.m to 6 p.m. Tuesday through Saturday. As mentioned in Wendy's column, the Seed Stewards will staff an information table at the Seed Library from 10 a.m. to noon on Saturdays through the spring. They also will offer workshops on seed saving, soil building, growing from seed and waterwise growing techniques. Since its launch in 2019, Santa Fe Seed Library has distributed nearly 15,000 seed packets to the community.

Calendar

Stay tuned ...

For more information about Let's Grow 2022, Santa Fe Extension Master Gardeners **FREE** monthly education series for the home gardener. We'll have more information in future editions of the newsletter.

And mark your calendars!

On Saturday, April 23, the SFEMG will host the public at a **FREE** Garden Planning Event from 1 to 4 p.m. at the Santa Fe County Fairgrounds. *This will be an excellent time to visit SFEMG Demonstration Gardens. Master Gardeners and interns will be on hand to show you plants that are best suited to New Mexico's challenging conditions and to help you plan your own successful garden. Our online plant sale will go live that evening. You will have an opportunity to preview the offerings online in the weeks leading up to the sale, our primary fundraiser for the year.*

Note: Santa Fe Community College requires proof of vaccination for all in-person classes. For more information visit https://sfcc.edu/covid. For a list of current SFCC noncredit Continuing Education "Home and Garden" courses, see pages 12-13 in the spring schedule. \$ means there is a fee. The acronym "phc" means Master Gardeners can earn 1 credit hour of Continuing Education for each hour attended.

March 1-3 (three-day online event presented by the Pollinator Friendly Alliance and the Xerces Society for Invertebrate Conservation)

Best Practices for Pollinators Summit

1 CE phc / \$

March 3 online through the Xerces Society

How Everyone Can Contribute to Pollinator Conservation

1 CE

March 12 at Santa Fe Community College

<u>Greenhouse Design and Operation</u> (will be offered again April 23) 3 CE / \$

March 12 online through Santa Fe Community College

Arid Land Restoration

3 CE / \$

March 17 presented by the Xerces Society

Building Pollinator Habitat through USDA-NRCS Programs

1.5 CE

March 23 (signups close March 17)

SFEMG Herb Propagation Workshop I (online)

2 CE

March 26 at Santa Fe Community College

Introduction to Farming with Water (will be offered again on May 7)

4 CE / \$

March 27 (signups close March 9)

SFEMG Herb Propagation Workshop II (online)

2 CE / \$



New & Noteworthy

Have you recently read a gardening-related article or book, visited a horticultural website or blog, listened to a podcast, or seen a nature show or documentary you think other gardeners would enjoy or find useful? Send a link to the newsletter (news.sfemg@gmail.com) and we'll try to include the information in the next issue. **Note that some of these sources may have paywalls.**

"Rethinking your choice of trees" by Laurie McGrath, shared with permission of HOME/Santa Fe New Mexican (February 2022)

"Grow These Native Alternatives to Invasive Plants" by Elizabeth Yuko, Lifehacker (Feb. 22, 2022)

"The Garden Decoder: On Cultivars, Nativars, and Natives" by Joy Yagid, Gardenista (Feb. 21, 2022)

"Save Your Houseplants With These Plant Care Tips From the Experts" by Alexa Morales, *Design Milk* (Feb. 21, 2022)

"Indoor gardening: why we're all bringing the outside in and reconnecting with nature" by Leah Sinclair, *Stylist* (Feb. 19, 2022)

"<u>Lichens Are in an Evolutionary Race Against Climate Change</u>" by Corryn Wetzel, *Smithsonian Magazine* (Feb. 17, 2022)

"Grow a Sand Cherry Shrub for Spring Pollinators" by Kaitlin Stainbrook, *Birds & Blooms* (Feb. 16, 2022)

"Cult Narcissi: Rethinking the Uncool Daffodil" by Clare Coulson, Gardenista (Feb. 16, 2022)

"Required Reading: 'Wild: The Naturalistic Garden' by Noel Kinsbury" by Clare Coulson, *Gardenista* (Feb. 11, 2022)

"<u>Fix, Not Fight: Scientists Help Plants Regenerate After Injury</u>" New York University news release (Feb. 10, 2022)

"Why is permaculture gardening so popular?" by Dawn Hammon, Inhabitat (Feb. 8, 2022)

"We Almost Forgot About the Moon Trees" by Marina Koren, The Atlantic (Jan. 31, 2022)

"Iris Flower Types and Facts You Should Know" by Kaitlin Stainbrook, Birds & Blooms (Jan. 27, 2022)

"Tomatoes Make Great Sunflower Companion Plants" by SeEtta Moss, Birds & Blooms (Jan. 25, 2022)

"Roses from Sissinghurst: 15 of the best" with head gardener Troy Scott-Smith and photographs by Rachel Warne, *Gardens Illustrated* (Jan. 20, 2022)

"Top 10 Red Hummingbird Flowers" by Stacy Tornio, Birds & Blooms (Jan. 14, 2022)

The Garden Journal Radio Show



Every Saturday 10 to 10:30 a.m. on KSFR 101.1 FM

March 2: Slow Food Santa Fe Edition

Hosts Lissa Johnson and Nina Rosenberg talk with Kendal Chavez, food and hunger coordinator, Office of the Governor, about the Food, Farm and Hunger Initiative included in the 2022 New Mexico legislative session budget proposal.

March 9: SFEMG Edition

Host Christine Salem and guest Dagmar Llewellyn, Planning Group Supervisor in the U.S. Bureau of Reclamation's Water Management Division, explore the impact of climate change on New Mexico's water supply. This program is the sixth in a series on the New Mexico water crisis.

March 16: Soil Stories Edition

Host Carrie Core presents another guest engaged in creating heathy soil.

March 26: Home Grown New Mexico Edition

Jannine Cabossel, "The Tomato Lady," shares tips and techniques for backyard vegetable gardening. See more at *Giant Veggie Gardener*.



We are here to help!

If you have a gardening question, Santa Fe Extension Master Gardeners are available to help.

Just go to <u>sfemg.org</u> and pose your question.
We'll do some research and get back to you.