



LAZY GARDENER & FRIENDS

Houston Garden Newsletter



Jan-28-2022 | Issue 421

Nature's Way Resources is proud to produce & email you this free weekly newsletter. We have no ads, but sponsors do graciously help support this project as a public service. Please note their names below & show your gratitude for this free service by patronizing their businesses! To become a sponsor, call (936) 273-1200

Nature's Way Resources owner John Ferguson, "The Lazy Gardener" Brenda Beust Smith and Pablo Hernandez welcome your feedback and are so grateful to the many horticulturists who contribute their expertise

[Click here to join our email list](#)

[CLICK HERE for PDFs OF PAST LG&F NEWSLETTERS](#)



CHALLENGES OF SHADE POWERS OF COLOR

By **BRENDA BEUST SMITH**

"Gardens are a form of autobiography."

-- Sydney Eddison, Horticulture magazine, Aug./Sept. 1993

Nothing is more frustrating -- garden wise -- than to see a neighbor's yard covered with gorgeous flowers while yours isn't producing any blooms at all. [Numerous possibilities might explain why.](#)

But In Houston, with our gorgeous huge trees and/or gigantic sun-blocking homes and buildings sprouting everywhere, shade has become a major reason for reduced flowering.

Lake Jackson Garden Club President **SUSAN CHAPPELL** faces this challenge in Brazoria County (*a region noted for its gigantic live oaks*). She has documented (and treasures) every minute of sunshine, which usually varies throughout the year.

Let that be your starting point if shade is reducing your flowering. We seldom actually notice how the sun moves across our property through spring, summer, fall and winter. Nor are we usually aware of — or document how and when — trees' shadows change as they grow.

Susan's pistache tree is doing great on the SW side of her house. Only catch, it now casts full shade underneath. Until, that is, leaves fall in December. Then plants underneath at least get afternoon, filtered sun until leaves sprout in late spring. Fortunately, this is all the sun it seems to take for her to grow — pictured l to r above — pink polka dot, coleus, and Persian shield.



Truth is: it takes patience, experimentation and good knowledge of your own yard to fill shade areas with color. Pictured, l to r above, are more of Susan's shade-tolerant successes:

- 'Queen Emma' crinum blooms well in spite of a pecan tree's afternoon shade
- A 25+/-year-old double pink 8' high camellia that blooms like crazy in late Dec or early Jan. in deep shade
- Pentas
- Pink firespike
- Shrimp plants. Ironically in shade, these flowers/bracts turn darker. But the same plants in more sun grow taller (with regular watering)

* * *

TO DRAW EVEN MORE HUMMERS, birds, butterflies and other delightful wildlife, include shade-loving natives, including (l to r below): Scarlet buckeye, Brazos Penstemon, mistflower and Texas redbud (native variety).



DO SHARE if you have other perennials or shrubs that bloom well in shade? Be specific about season or time of day if they get any sun at all. It makes a difference! Looking specifically for natives? Texas Native Plant Society of Texas has [great lists](#). Click on Resources. Click on "Chapters" to find your

nearest one's website for more area-specific ideas and sales! Numerous upcoming group sales are listed in our calendar below.



Speaking of colors, they do more than just brighten a garden. For example red, yellow and hot pink make us more energetic.

Reds increase appetite. Yellows make us happy. Soft pink, lavender, blue and green help soothe and relax us!

Pink looks sweet and fragrant, even if it isn't! Some say it is difficult to argue with someone in pink! Green is restful, especially on tired eyes. Blues and lavenders are cooling.

COLORS CAN BE 'MANIPULATIVE'!

- To make a small yard look bigger, plant "hot" colors (red, orange, fuchsia) close in. In back of the yard, use pastels and white (they look farther away than they actually are).
- To make a too-large area look more intimate, do reverse: "hot" colors in the back of the yard and pastels close in.
- White flowers not only immediately draw the eye in shady dark areas (especially at night), they intensify the colors of nearby flowers and plants. (*pictured: paperwhite narcissus that should be blooming now.*)
- Use low yellow flowers near uneven pathways where folks might trip. Yellows and oranges draw the eye faster than any other color.
- When possible, coordinate garden and house colors. When gardens adjacent to the house "just don't look right," color clashes may be to blame.



(Tips courtesy of Lazy Gardener's Guide. Email for free pdf: lazygardenerbrenda@gmail.com)

* * *

FANS OF CONGO NURSERY, 2018 Strawberry Rd., in Pasadena, (congonursery@gmail.com) are sad about the later-this-year closing of this 26-year-old landmark. Owners Cynthia and David Stewart, retiring to Livingston, are liquidating their inventory of No. 1 bushes from Weeks Roses inventory reports Houston Rose Society stalwart Baxter Williams, whose Pasadena-area rose garden is equally as famous!

Included in the sale will be this 'Perfume Delight,' noted for both its beauty and "knock your nose off fragrance!" says Baxter, who shot this picture.



SPEAKING OF BUTTERFLIES, IS THERE A MONARCH GARDEN in your group's future?" February 15 is the submission deadline for the [Native Plant Society of Texas' Bring Back the Monarchs to Texas" garden grant applications](#). Grants are funded by NPSOT,

Monarch Watch and individual donations to the Bring Back the Monarchs to Texas (BBMT) program. Registering your garden as a Monarch Waystation is

encouraged but not required. [Monarch Waystation requirements](#).

*Brenda Beust Smith's column in the
LAZY GARDENER & FRIENDS HOUSTON GARDEN NEWSLETTER
is based on her 40+ years as Houston Chronicle's Lazy Gardener
Email: lazygardenerbrenda@gmail.com*

* * *



OHBA Organic Horticulture Science Day

Friday, February 11TH • 7:15 AM to 3:45 PM
United Way of Greater Houston | 50 Waugh Dr Houston, TX 77007

**Learn the latest in Organic Science, enjoy breakfast, lunch,
education & networking at this fantastic day long event!**

Get Certified! All Participants will receive an Organic certificate for completion.

ITINERARY

7:15 - 8AM Registration with Coffee & Tacos
8:00 - 11:45AM Speaker Presentations
11:45AM - 12:30PM Lunch & Networking
12:30 - 3:45PM Speaker Presentations



Mike Serant

INTRO/ENVIRONMENTAL ECONOMICS
This lecture will show how, Organics being based on science, is always the most economical & logical approach.

8:00 - 8:30AM



Molly Pikarsky

ORGANIC FERTILIZATION & INSTALLATION
How to make your new installs & annual maintenance programs always soar with success, Organically of course!

12:30-1:30 PM



Dr. Lisa Morano

UNDERSTANDING THE SOIL MICROBIAL WORLD
Learn up close and personal the fascinating world of soil microbes, who they are and how they are essential to your success.

8:30-9:30AM



Skip Richter

ORGANIC PEST CONTROL
Organics means less problems, but occasionally they will pop up. Learn the best and safest way to treat them.

1:30-2:30 PM



Brian Russ

COWBOY UP YOUR MICROBES
Learn how to get the most out of your 24/7 underground workforce. Real life applications are discussed.

9:30-10:30 AM



Dr. Bob Randall

CLIMATE CHANGE ON TEXAS HORTICULTURE
Learn climate change effects on our plants. How to prepare for a changing future.

2:45-3:45 PM

Tickets:
OHBA Members: \$75
Non-Members: \$100

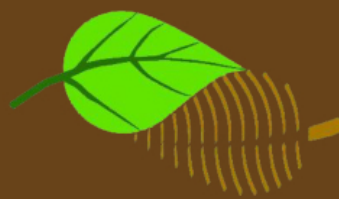
REGISTER HERE: ohbaonline.org/register

THANK YOU SPONSORS!





John's Corner



NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS # 181

MINERALS - The Elements and What They Do

Today we continue with our study of all the minerals (elements) in the human body, what they do. See previous newsletters (9/17/21 and 9/24/21) for a list of references and introduction to the Periodic Table.

Continuing to pick up the pace to get ready for spring, today we look at elements 56-65 which are barium, lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, and terbium. Unless one is a scientist you have most likely never heard of some of them. However new research has shown that many of them are linked to longer lifespans in mammals, including humans.

56) **Barium (Ba)** - Barium is a soft silvery-white metal found all over the earth. In igneous rocks, it may range from 0.5-1,200 ppm with an average of 425 ppm and in sedimentary rock 50-800 ppm, thus barium is common in soils from 100-3,000 ppm. Barium gets its name from the Greek *barys*, which means heavy. This derives from minerals that have barium in them and they are heavy.

Barium in soils average 500 ppm where it is in mobile forms. However, it easily precipitates as sulfates and carbonates and will be absorbed by clays, oxides, and hydroxides. Coals may have 75-330 ppm of barium.

Barium is an alkali metal in group 2 of the periodic table of elements, it reacts quickly with oxygen in the air, making it useless for many applications. In vacuum tubes, a piece of barium was included to react with any trace amounts of leftover oxygen, nitrogen, or water to prevent these from interfering with the function of the tube.

One of the benefits of barium is the density of slurries containing barium compounds. An example is the drilling mud (barium sulfate, BaSO_4) which is used in oil well drilling to prevent blow-outs (90% of all usage of barium). Barium is also used in the manufacture of ceramics, bricks, tile, and glasses. A compound of barium composed of barium, yttrium, carbon and oxygen is a superconductor. Barium nitrate is used to produce a green color in fireworks. The rare mineral below, which is a barium-titanium-silicate ($\text{BaTiSi}_3\text{O}_9$) that has a translucent blue color, which can be cut and turned into a gemstone.



Barium is found concentrated in phosphate bearing rocks, thus artificial fertilizers often have high barium levels. Barium most often occurs with a +2 electrical or valence state. Its common minerals are barium sulfate or Barite (BaSO_4), barium carbonate called Witherite (BaCO_3), and Hollandite ($\text{Ba}_2\text{Mn}_8\text{O}_{16}$).

Until recently, barium was considered to have no biological role, but today, it is considered essential for our health.

Barium is mainly found in the bones and teeth of humans. One report stated that the AIDs virus loves barium and an excess may help it reproduce. Barium sulfate due to its density is often ingested, to enhance medical imaging of soft tissue in our stomachs and intestines.

One use for barium is in animal studies, researchers found that mother orangutans transfer barium from their own skeletons to their babies while they are nursing. This forms layers in the babies' teeth that can identify how many years the babies have nursed (orangutans often do not wean until 8 years of age). Science News, June 2017

Gardening and Landscaping Problems Associated with Barium (Ba)

It is generally believed that barium plays no role in the metabolism of plants. However, plants, especially in acidic soils, easily absorb barium with greater absorption at lower pH levels. Most plants have 2-14 ppm of barium in their tissues with higher levels found in dryer climates. Wheat has 3.2 ppm, cereal grains 5.5 ppm, carrots 13 ppm, lettuce 9 ppm, beans 8 ppm, tomatoes 2.1 ppm, and apples at 1.5 ppm. Barium is found in all food groups with the highest levels in nuts. Blueberries with very high levels of barium have been reported.

Levels of barium at 2,000 ppm in the soil inhibit the growth of some plants. However, if compounds of sulfur (S) and calcium (Ca) are in the soil then

toxicity effects of barium are reduced.

The leaves of some nut trees have barium levels above 10,000 ppm! Some Brazil nuts have also been reported with 10,000 ppm of barium. Some species of yeast have a high affinity for barium where it accumulates on their surface.

Sources: coal and coal ash, artificial fertilizers made from phosphate rocks, re-mineralizer.

57) **Lanthanum (La)** - Lanthanum is the first element of a group that we call the "Rare Earth" elements or "Lanthanides". If one looks at the Periodic table below, notice the two rows at the bottom where they are grouped together as they have almost identical chemical properties. However, they have very different magnetic properties.

The Path to Health for plants and those that grow and eat them



OCEAN SOLUTION

MINERALIZER

1 H Hydrogen 1.00794																	2 He Helium 4.00260				
3 Li Lithium 6.941	4 Be Beryllium 9.0122											5 B Boron 10.811	6 C Carbon 12.0107	7 N Nitrogen 14.0064	8 O Oxygen 15.9994	9 F Fluorine 18.9984	10 Ne Neon 20.1798				
11 Na Sodium 22.9897	12 Mg Magnesium 24.305											13 Al Aluminum 26.9815	14 Si Silicon 28.0855	15 P Phosphorus 30.97376	16 S Sulfur 32.06	17 Cl Chlorine 35.453	18 Ar Argon 39.948				
19 K Potassium 39.0983	20 Ca Calcium 40.078	21 Sc Scandium 44.9559	22 Ti Titanium 47.867	23 V Vanadium 50.9415	24 Cr Chromium 51.9961	25 Mn Manganese 54.938	26 Fe Iron 55.845	27 Co Cobalt 58.9332	28 Ni Nickel 58.6934	29 Cu Copper 63.546	30 Zn Zinc 65.38	31 Ga Gallium 69.723	32 Ge Germanium 72.64	33 As Arsenic 74.9216	34 Se Selenium 78.96	35 Br Bromine 79.904	36 Kr Krypton 83.798				
37 Rb Rubidium 85.4678	38 Sr Strontium 87.62	39 Y Yttrium 88.9058	40 Zr Zirconium 91.224	41 Nb Niobium 92.9064	42 Mo Molybdenum 95.94	43 Tc Technetium [98]	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.9055	46 Pd Palladium 106.42	47 Ag Silver 107.8682	48 Cd Cadmium 112.411	49 In Indium 114.818	50 Sn Tin 118.71	51 Sb Antimony 121.76	52 Te Tellurium 127.6	53 I Iodine 126.9045	54 Xe Xenon 131.29				
55 Cs Cesium 132.9055	56 Ba Barium 137.327											81 Tl Thallium 204.3833	82 Pb Lead 207.2	83 Bi Bismuth 208.9804	84 Po Polonium [209]	85 At Astatine [210]	86 Rn Radon [222]				
87 Fr Francium [223]	88 Ra Radium [226]	57 La Lanthanum 138.9055	58 Ce Cerium 140.116	59 Pr Praseodymium 140.9077	60 Nd Neodymium 144.24	61 Pm Promethium [145]	62 Sm Samarium 150.36	63 Eu Europium 151.964	64 Gd Gadolinium 157.25	65 Tb Terbium 158.9253	66 Dy Dysprosium 162.5	67 Ho Holmium 164.9303	68 Er Erbium 167.259	69 Tm Thulium 168.9342	70 Yb Ytterbium 173.054	71 Lu Lutetium 174.967					
		89 Ac Actinium [227]	90 Th Thorium 232.0377	91 Pa Protactinium 231.0362	92 U Uranium 238.0289																

NPK

Solids

Liquids

Gases

Not natural on Planet Earth,
Not in OceanSolution.

Lanthanum is found in igneous rocks at 30 ppm, shale at 20 ppm, and very little in sandstone or limestone. Soils average around 30 ppm, and very little are found in fresh or seawater. However, marine plants can have 10 ppm.

Most of the rare earth elements are not rare in nature but often occur together in various minerals and were hard to separate (hence the name "rare"). Cigarette lighter flints are alloys of iron (Fe), lanthanum (La), cerium (Ce), and small amounts of praseodymium (Pr) and neodymium (Nd).

Rare earth elements when oxidized are very heat-resistant and glow brightly when hot; thus, they are used in lantern mantles heated by burning gas (ex. gasoline camping Lanterns).

Lanthanum's most common electrical or oxidation state is +3 (as are most of the other rare earths).

Lanthanum is often found in igneous rocks and in phosphorites used to produce artificial fertilizers. It is used to produce colored glass and electronic components.

Sandy soils have the least amount of this element with loamy soils the most. Organic matter has a high capacity to bind this element to levels 10X that of surrounding soil. Lanthanum is only slightly soluble hence, it is not very mobile in soils, however microorganisms and earthworms in the soil help release this element.

It is believed that this element is involved with the regulation of metabolism in both plants and animals including humans even though direct evidence has not been found. Lanthanum is found in human bones, the liver and kidneys.

When added to animal feed it improves weight gain and feed conversion to body mass in all farm animals (chickens, ducks, cattle, pigs, etc.). It also improves milk production in cows and egg production in chickens.

Gardening and Landscaping Problems Associated with Lanthanum (La)

Horticultural research in the United States has largely ignored this element while China has been using it for decades.

Fertilizers enriched with this element stimulate seed germination, seedling growth, and chlorophyll content.

Research in China has found both yield increase and quality improvements across a wide range of crops when *lanthanum and other members of this family of rare earth elements were present in the soils.*

There is not any clear evidence of toxic effects of this element on plants; however, it does have an impact on cell membranes of vascular plants and on calcium (Ca) metabolism in some microorganisms.

Mosses tend to accumulate this element, as do *Carya* species. Some hickory trees have been found to accumulate up to 2,300 ppm of this element. Woody plants in general have the ability to absorb more of this element. The concentration of lanthanum found in plants range from below 1 ppb to over 15,000 ppm.

The yeast (*Candida albicans*) can absorb up to 370 ppm per day. It is proposed this may be how *Candida* causes a debilitating energy sapping disease by stealing lanthanum from the patient.

Sources: fly ash, sewage sludge, animal manures, sands of igneous rock, re-mineralizer.

58) Cerium (Ce) - Cerium is the second member of a group that we call the "Rare Earth" elements or "Lanthanides". It is a reactive grey metal that will tarnish in air, and will burn if scratched with a knife. The most common electrical or oxidation state is +3 (it is also stable at a +4 state). Even though it is called a rare earth, it is almost as common as zinc (Zn) and four times more

common than lead (Pb).

Cerium is found in igneous rocks at 60 ppm, shale at 59 ppm, sandstones at 92 ppm, and limestone at 12 ppm. Fresh and seawater have very little cerium. Soils average 50 ppm, and land plants can accumulate 320 ppm. Land animals have only 0.003 ppm.

Cerium is added to diesel fuel to lower the soot ignition temperature allowing it to be trapped by filters. Cerium oxide (CeO_2) is part of catalytic converters to clean up car exhaust and it is also used to polish glass.

Cerium compounds were used in gas incandescent mantles in the late 1800's to create a bright light. It is used in medicine to treat topical burns and cerium sulfide (Ce_2S_3) is used as a red pigment for plastics.

Cerium is used in flat screen monitors and televisions, and long-life low energy light bulbs. Compounds of cerium are used in many appliances and devices.

For years it was believed that cerium has no known biological role; however, cerium salts can stimulate metabolism, lowering cholesterol levels, blood pressure, appetite, and risk of blood coagulation. Cerium is considered non-toxic to animals and humans as the body rapidly excretes it. However, animals that were injected, with large doses of cerium, had a heart attack and died.

A dilute solution of cerium nitrate $\text{Ce}(\text{NO}_3)_3$ is an effective treatment for bathing the skin of humans with 3rd degree burns.

Gardening and Landscaping Problems Associated with Cerium (Ce)

Very little is known about cerium and how it affects plants. The amount found in plants correlates to the amount in soils. A few plants will accumulate cerium (*Carya sp.* accumulate cerium to 320 ppm).

Sources: some phosphate rocks, igneous rocks, sewage sludge, re-mineralizer

59) Praseodymium (Pm) - Praseodymium is the third member of a group that we call the "Rare Earth" elements or "Lanthanides". It is found in igneous rocks at 8 ppm, shale at 6 ppm, sandstone at 2 ppm and limestone at 1.4 ppm. Marine plants have 5 ppm and land plants have up to 46 ppm. Marine animals have 0.5 ppm and land animals have 1.5 ppm where in mammals it accumulates in the bone and liver. Seawater has only 1 ppt (parts per trillion).

Praseodymium is used to make special glass lens that glass blowers use to protect their eyes and it is used to give glass and pottery glaze a clear yellow color.

Praseodymium is used in magnets and many types of lighting. It has the unique property, that when exposed to magnetic fields, it lowers its temperature and has helped scientists' approach within 1/1,000 th of a degree of absolute zero.

It is used in making carbon arc lights to create daylight white light for motion picture filming and it creates the color in fake cubic zirconia-based peridot.

Praseodymium is used to alloy with magnesium (Mg) to increase strength where it is used in aircraft engines.

For years it was believed that praseodymium has no known biological role; however recent research has shown praseodymium salts enhances proliferation of normal cell growth and doubles the life span in laboratory test species.

Gardening and Landscaping Problems Associated with Praseodymium(Pm)

Plans do not absorb praseodymium very well; hence, vegetables only have 1-2 ppb in them, so very little gets into the food chain.

Sources: mineral sands of igneous rocks, re-mineralizer.

60) Neodymium (Nd) - Neodymium is a bright silvery-white metal that quickly tarnishes when exposed to air. This metal is different from the other lanthanides as it has three oxidation or electrical states (+2, +3 and +4). This member of the rare earth family is found in igneous rocks at 28 ppm, shale at 16 ppm, sandstone at 11 ppm and limestone at 4 ppm. Marine plants have 5 ppm but land plants can have 460 ppm as in some *Carya* species (Hickories). Marine animals have 0.5 ppm. In mammals, it accumulates in the bone and liver.

When neodymium (Nd) is combined with iron (Fe) and boron (B) where it is called NIB, it makes excellent strong permanent magnets. These magnets are so strong they can be dangerous to be around. These magnets are used to make stud-less jewelry.

It is used in crystal matrices to make quantum memory devices and it allowed for the miniaturization of many electrical components. Neodymium is used in alloys of high strength, computer hard drives, mobile phones to wind turbines and hundreds of products. Neodymium is now being used to make quantum computers as the element can hold photons for a few nanoseconds.

If neodymium oxide (Nd_2O_3) is added to molten glass, the result is a beautiful deep lavender color. Neodymium glass is also used to produce powerful lasers.

For years it was believed that neodymium has no known biological role. However, Neodymium is a lighter rare earth element that is proven to enhance normal cell growth and double the lifespan of laboratory species.

Neodymium can have other effects of the human body. Neodymium salts and dust are very irritating to the eyes. If ingested the salts are only slightly toxic if they are soluble and non-toxic if they are insoluble.

The level of neodymium in sewage is less than the other lanthanides which suggest more of it is retained in our bodies.

Gardening and Landscaping Problems Associated with Neodymium (Nd)

Neodymium is not readily absorbed by plants as it only averages around 10 ppb hence very little enters the food chain. However, some plants can accumulate up to 3,000 ppb.

Sources: mineral sands of igneous rocks, re-mineralizer.

61) **Promethium (Pm)** - Due to the unique arrangement of protons and neutrons there is no stable arrangement or stable isotopes of this element. Promethium is radioactive with a half-life of 2.6 years; as a result, promethium did not exist in nature (biosphere) until nuclear explosions occurred.

Promethium was once used to make luminous dials for watches and luminous paints and was used in some electrical devices.

If ingested it accumulates in the bones and liver of mammals. Promethium has no role in any living thing.

Gardening and Landscaping Problems Associated with Promethium (Pm)

None

Sources: nuclear fall out.

62) **Samarium (Sm)** - Samarium is a "light" rare earth element and is found in igneous rocks at 6 ppm, shale at 5.6 ppm, and sandstone at 2.7 ppm. In pure form, it is a silvery-white metal that is stable in air.

Samarium-cobalt magnets are not as strong as others mentioned but they can operate at higher temperatures where other types would lose their magnetism. Samarium is used in electrical devices and in chemical and medical research.

Samarium is found in both marine animals and land animals at less than 1 ppm. For years it was believed that samarium had no known biological role. However, as in other rare earth elements when present, samarium enhances normal cell growth and doubles the life span of laboratory species. Samarium salts also stimulate metabolism.

Gardening and Landscaping Problems Associated with Samarium (Sm)

Normally land plants have very little samarium in them (less than 1 ppm) as it is not taken up by roots; however, a few plants can accumulate up to 23 ppm.

Sources: mineral sands of igneous rocks, re-mineralizer.

63) **Europium (Eu)** - As you might have guessed, Europium is named for the continent Europe and is the 50th most common element on earth. It is a soft silvery metal and reacts readily with water and oxygen. Europium is found in igneous rocks at 1-2 ppm, shales and sandstones at 1 ppm.

Unlike other rare earth elements, the value of Europium is not on magnetism but on luminosity. Paints made from this element can glow for many minutes or

even hours after being exposed to a strong light source. It is used in cathode ray tubes (CRT), monitors, television set, etc. It is used in many types of compact fluorescent light bulbs. This element is so reactive that it will oxidize over time even when stored under oil.

Europium is not easily absorbed by plants hence very little gets into the food chain. In traditional thought it has no known biological role. However, laboratory animals fed diets with Europium present increase their lifespan by 100%.

Research from Ludwig-Maximilians-University published in the journal ChemBioChem 2018 has found the bacterium *Methylophilum fumariolicum* uses europium to make an enzyme that converts methanol into formaldehyde. Its active site consists of the cofactor PQQ (pyrroloquinoline quinone) which is critical for many biological functions from microbes to humans.

Gardening and Landscaping Problems Associated with Europium (Eu)

Present in some plants at 30-130 ppb (parts per billion), however most vegetables are far less at 0.04 ppb. Members of the *Carya* family often have 16 ppm.

Sources: mineral sands of igneous rocks, re-mineralizer.

64) Gadolinium (Gd) - Gadolinium is another member of the "Rare Earth" group. Gadolinium is a silvery-white, malleable, and ductile metal. It is found in nature only in oxidized form, and even when separated, it usually has impurities of the other rare earths.

It is found in igneous rocks at 5.4 ppm, shales at 4.3 ppm, sandstones at 2.6 ppm, and very little in limestone at 0.7 ppm. Gadolinium is the 41st most common element on earth and is more common than tin (Sn).

Many gardeners know the importance of para-magnetism to have healthy gardens. Gadolinium compounds are highly paramagnetic. This property makes this element very useful in medical applications where it improves contrast for procedures like MRI's. One example is injecting gadopentetate dimeglumine ($C_{14}H_{18}GdN_3O_{10}$) into one's blood stream and the MRI will show where the blood is going (showing the exact location of internal bleeding).

Gadolinium also has the unique property of going from ferro-magnetic to para-magnetic at near room temperatures (Currie point). In ice water, it will stick to a magnet but as it warms up it and becomes paramagnetic, it will fall off.

Gadolinium will also absorb neutrons and is used in nuclear reactors. Gadolinium is also used in microwave applications.

Very little gadolinium is found in the human body, however if ingested it quickly accumulates in the bones and liver of land mammals. Gadolinium has no known biological role but its salts stimulate metabolism.

Gardening and Landscaping Problems Associated with Gadolinium (Gd)

Most plants do not absorb gadolinium into their roots hence very little enters the food chain. A few land plants can absorb up to 70 ppm of this element, particularly the *Carya* species.

Sources: mineral sands of igneous rocks, re-mineralizer.

65) Terbium (Tb) - Terbium is a soft silvery metal that is slowly oxidized in air and will react with cold water (most elements react with hot water). Terbium is found in the earth's crust at 1 ppm and is the 57th most abundant element (twice as common as silver). It is found in igneous rocks at 0.9 ppm, shales at 0.58 ppm, and limestone at 0.07 ppm. Land plants have only 0.0015 ppm and land animals at 0.0004 ppm.

This element has the unique property that it will change its shape when placed in a magnetic field. This means a rod will grow longer or shorter depending on the magnetic field. This allows any solid material to be turned into a loud speaker; hence, it is used in many speaker applications. In making glass it is used as a coloring agent giving glass a beautiful red color.

The amount of terbium in the human body is not known, and has no known biological role. Very little terbium is absorbed by plant roots hence very little gets into the food chain. Vegetables that have been studied had less than 1 ppb in them. The small amount absorbed by humans ends up in the bones.

Terbium is a rare earth element and is four times more costly than platinum. It is commonly used in lasers and low energy lighting.

Gardening and Landscaping Problems Associated with Terbium (Tb)

No known issues, good or bad.

Sources: mineral sands of igneous rocks, re-mineralizer

* * *

NWR NOW CARRIES SEEDS FROM


NATIVE AMERICAN SEED COMPANY

\$3.00 EACH !

**LAZY GARDENER & FRIENDS
HOUSTON GARDEN NEWSLETTER**

CALENDAR EVENTS

SUBMITTING EVENTS? PLEASE READ!

- Only events submitted specifically for LG&F calendar are used
- Put sponsor's FULL name in email subject.
- Very long links will be shortened, but full link activated when clicked
- Submit events to: lazygardenerbrenda@gmail.com

EVENTS ARE ON-SITE UNLESS OTHERWISE NOTED

--- COVID IS STARTING TO IMPACT GARDENING EVENTS ---

ALWAYS CONFIRM TO MAKE SURE ON-SITE EVENTS HAVEN'T BEEN CANCELLED.

SOME MAY REQUIRE MASKS, SO GO PREPARED!

SAT. JAN 29: GROWING PEACHES by HERMAN AUER, 9-11:30 and
GARDEN BULBS by FRAN BROCKINGTON & LISA DAVIS, Galveston
County Master Gardeners event, 1-3. Register: galveston.agrilife.org/

SAT., JAN. 29: ORGANIC SOIL PREP PRIMER by MARK BOWEN,
10:30am, Wabash Feed and Garden, 4537 N. Shepherd. Register:
<https://bit.ly/3J8x5ol>, wabashfeed.com

SAT., JAN. 29: 46th ANNUAL ARBOR DAY TREE GIVEAWAY by THE
WOODLANDS TOWNSHIP, 9am-noon. Free. Tree list / event details:
thewoodlandstownship-tx.gov/arborday

**SAT., JAN. 29: NATIVE PLANT SOCIETY OF TEXAS PINES & PRAIRIES
CHAPTER POLLINATOR GARDEN DEDICATION**, 1-3pm, Spring Creek
Greenway Center, 1300 Grand Parkway Frontage Rd (1300 Riley Fuzzel).
Gail.mcconnel1315@gmail.com

**SAT.-SUN., JAN. 29-30: COUSHATTA CAMELLIA SOCIETY ANNUAL
PLANT SALE** (Note: Show section has been cancelled), 1-4pm, First Christian
Church 3500SH-336 Loop, Conroe. Free. coushattacamelliasociety.com.

**WED., FEB. 2: SPRING GARDEN FAVORITES: TOMATOES, POTATOES,
AND ROSES** (Zoom) by JANICE BROWN, 7-8pm. Urban Harvest event.
urbanharvest.org/education/classes/

WED., FEB. 2: POLLINATOR GARDENS, 9:30-11am, Webster Presbyterian
Church (Boutin Hall), 201 NASA Pkwy, Webster. Free. Gardeners By The Bay
event. gbtb.org

FRI., FEB. 4 GARDEN CRUISIN': TOUR DE 4, 9am & 11am, [Mercer Botanic
Gardens](http://Mercer Botanic Gardens), 22306 Aldine-Westfield. Free. Ages 60+ or anyone age 12+ with
mobility needs. Register: 713-274-4160.

SAT., FEB. 5: BACKYARD COMPOST CLASS by THE WOODLANDS
TOWNSHIP, 10-11am. Free. 8203 Millennium Forest Dr., The Woodlands.
Free. thewoodlandstownship-tx.gov/Calendar

**SAT. FEB. 5: MONTGOMERY COUNTY MASTER GARDENER FRUIT &
NUT TREE SALE.** Presentation 8am, sale 9-Noon, Texas AgriLife Extension,
9020 Airport Road, Conroe. Plant list: mcmga.square.site. 936-539-7824

WED., FEB. 9: TREE-RIFIC VOLUNTEERS, 9am, Horticultural Propagation Center. Free. Register: [Mercer Botanic Gardens](#). 281-353-8100.

FRI-SAT., FEB 11-12: GALVESTON COUNTY MASTER GARDENER SPRING PLANT SALE. Online only. Browse: Fri, Jan 4. Shop: Noon Fri to Noon Sat. [store.galvestonmg.org](#)

SAT., FEB.12: URBAN GARDENING AND AFRICAN AMERICAN TRADITIONS FROM THE GARDEN by **TERRY GARNER AND CHEF NADIA AHMED**, 9am -12pm, Palm Center Garden. [urbanharvest.org/education](#)

SAT., FEB.12: GROWING FRUIT TREES IN SMALL SPACES: SPRING PREPARATION (Zoom) by **ANGELA CHANDLER**, 9:30-11:30am. Urban Harvest event. [urbanharvest.org/education/classes/](#)

SAT., FEB. 12: FRIENDS OF MERCER BOTANIC GARDENS TOMATO & FRUIT TREE SALE (virtual), 8am-8pm, Inventory: [Friends of Mercer Botanic Gardens](#); 713-274-4166.

TUES., FEB. 15: HOUSTON BOTANIC GARDEN by **FRAN DE LA MOTA**, 10am, St. Basil's Hall, 702 Burney Rd, Sugar Land. Free. [sugarlandgardenclub.org](#).

WED., FEB. 16: 2022 NANCY STALLWORTH THOMAS HORTICULTURE LECTURE: NATURE'S BEST HOPE TO CONSERVATION THAT STARTS IN YOUR YARD by **DR. DOUG TALLAMY**, 10am, St. Martin's Episcopal Church, 717 Sage Rd. Free. Garden Club of Houston event. [gchouston.org](#)

WED., FEB. 16: MERCER BOTANIC GARDEN VOLUNTEER ORIENTATION, 6-7pm,, Timber Lane Community Center. Free. Register: [hcp4.net/parks/mercer/events/required](#). 713-274-4160.

THU., FEB.17: CULTURAL CONNECTIONS- HISTORIC LAND THEN AND NOW (Zoom) by **BILLY LAWTON**, 6-7:30 pm. Urban Harvest event. [urbanharvest.org/education/classes/](#)

FRI., FEB. 18: GARDEN CRUISIN': TOUR DE 4,9am & 11am, [Mercer Botanic Gardens](#). Free. Ages 60+ or anyone age 12+ with mobility needs. Register: [hcp4.net/parks/mercer/events/](#). 713-274-4160.

SAT., FEB 19: SPRING VEGETABLE GARDEN CLASS (virtual)by **THE WOODLANDS TOWNSHIP**, 9am-noon. Free. Online. Register: [thewoodlandstownship-tx.gov/Calendar.aspx?EID=9233](#)

SAT., FEB 19: INVASIVE SPECIES TRAININGby **THE WOODLANDS TOWNSHIP**, 8:30am-3:30pm. The Woodlands Emergency Training Center. Register: [thewoodlandstownship-tx.gov/Calendar.aspx?EID=9217](#)

WED., FEB. 23: TREE-RIFIC VOLUNTEERS, 9am. Mercer Botanic Gardens Horticultural Propagation Center. Free. Register: [Mercer Botanic Gardens](#). 281-353-8100.

FRI., MAR. 11: THINGS I WISH I HAD LEARNED SOONERby **BAXTER & PATSY**

WILLIAMS, 10AM, Trinity Episcopal Church, 1015 Holman St., Free. Federation of Garden Clubs event. houstonfederationgardenclubs.org.

SAT., MAR. 19: THE JOHN FAIREY GARDEN BUDDING OUT PLANT SALE & FESTIVAL, 10am-4pm, 20559 FM 259 Rd., Hempstead. 979-826-3232

FRI., APRIL 14: MAKE GARDENING EASIER by **DR. JOSEPH R. NOVAK**, 10am Trinity Episcopal Church, 1015 Holman, Houston. Federation of Garden Clubs event. Free. houstonfederationgardenclubs.org.

FRI. MAY 13: NATURE'S BURIAL, LEAVING A NATURAL LANDSCAPE AS YOUR LEGACY, by **THE KATY PRAIRIE CONSERVANCY**, 10am, Trinity Episcopal Church. 1015 Holman. Free. Federation of Garden Clubs event. houstonfederationgardenclubs.org.

— **Check contacts for changes and/or masking policies** —

NOTE! Only events submitted specifically for this calendar publication will be used. We do not pick up events from other newsletter or mass emails. Links will be fully linked if clicked but word-shortened if too long.

* * *



For event submission rules, see top of calendar

If we inspire you to attend any of these,
please let them know you heard about it in . . .

THE LAZY GARDENER & FRIENDS NEWSLETTER!
& please patronize our Newsletter & Calendar sponsors below!

If you are interested in becoming a sponsor, please contact us
at 936-273-1200 or send an e-mail to: lazygardenerandfriends@gmail.com



Saturdays 7-9am • SportsRadio 610



About Us

BRENDA BEUST SMITH

WE KNOW HER BEST AS THE LAZY GARDENER . . .

but Brenda Beust Smith is also:

- * a national award-winning writer & editor
- * a nationally-published writer & photographer
- * a national horticultural speaker
- * a former Houston Chronicle reporter

When the Chronicle discontinued Brenda's 45-year-old "Lazy Gardener" print column -- started in the early '70s as a fun side-project to reporting, it then ranked as the longest-running, continuously-published local newspaper column in the Greater Houston area.

Brenda's gradual sideways step from reporter into gardening writing -- first as a just-a-fun side Chronicle assignment in the early '70s, led first to an 18-year series of when-to-do-what ***Lazy Gardener Calendars***, then to her ***Lazy Gardener's Guide*** book which morphed into her ***Lazy Gardener's Guide on CD***. which she now emails free upon request.

A Harris County Master Gardener, Brenda has served on the boards of many Greater

Houston area horticulture organizations and has hosted local radio and TV shows, most notably a 10+-year Lazy Gardener specialty shows on HoustonPBS (Ch. 8) and her call-in "EcoGardening" show on KPFT-FM.

For over three decades, Brenda served as as Production Manager of the Garden Club of America's **BULLETIN** magazine. Although still an active broad-based freelance writer, Brenda's main focus now is **THE LAZY GARDENER & FRIENDS HOUSTON GARDEN NEWSLETTER** with John Ferguson and Pablo Hernandez of Nature's Way Resources.

A native of New Orleans and graduate of St. Agnes Academy and the University of Houston, Brenda lives in Humble, TX, and is married to the retired Aldine High School Coach Bill Smith. They have one son, Blake.

Regarding this newsletter, Brenda is the lead writer, originator of it and the daily inspiration for it. We so appreciate the way she has made gardening such a fun way to celebrate life together for such a long time.

JOHN FERGUSON

John is a native Houstonian and has over 27 years of business experience. He owns Nature's Way Resources, a composting company that specializes in high quality compost, mulch, and soil mixes. He holds a MS degree in Physics and Geology and is a licensed Soil Scientist in Texas.

John has won many awards in horticulture and environmental issues. He represents the composting industry on the Houston-Galveston Area Council for solid waste. His personal garden has been featured in several horticultural books and "Better Homes and Gardens" magazine. His business has been recognized in the Wall Street Journal for the quality and value of their products. He is a member of the Physics Honor Society and many other professional societies. John is is the co-author of the book **Organic Management for the Professional.**

For this newsletter, John contributes articles regularly and is responsible for publishing it.

PABLO HERNANDEZ

Pablo Hernandez is the special projects coordinator for Nature's Way Resources. His realm of responsibilities include: serving as a webmaster, IT support, technical problem solving/troubleshooting, metrics management and quality control.

Pablo helps this newsletter happen from a technical support standpoint.

