Salvia Comes in Many Sizes and Colors

Since the 1980's, many colorful species of ornamental sage have become horticultural stars in low desert landscapes where interest in water conservation has become an important concern.

Sage, otherwise known by the genus name Salvia, has become extremely popular in low water use landscapes throughout the Southwest. Their brilliant colors, along with the various shapes and textures, make them particularly useful in area landscapes.

The many species in current use today come from various parts of the world, including Mexico, South America, Europe, Asia, and Africa, as well as right here in the southwestern deserts. They all share, however, their common desert heritage and low demand for water.

These plants can be used as border perennials, shrubs or ground covers. Some species have white flowers, while others have flowers with shades of blue, lavender, purple, pink and scarlet. With the large choice between shapes and colors, the sage plants can truly be a star in any landscape.

With more than sixty sage species widely used throughout the west, there is a Salvia for nearly every elevation and landscaping need in our area. Some of the relatives are grown for food or medicine, but many are strictly ornamental.

One of the more popular ornamental sages is Autumn Sage or Salvia greggii. This species is well-adapted to our hot, dry conditions and does well in a wide variety of soils. It has medium green leaves up to one inch in length that densely cover the upright branches. The flowers come in many colors, including yellow to red and purple, and all have the pungent sage family fragrance. Autumn Sage flowers in the fall and winter in the desert.
The flowers are tubular in shape and are just about one-inch long. Hummingbirds are attracted to the flowers and add an additional dimension to the landscape. Place this shrub in a place where you can put an easy chair and sip a cool drink while watching the show. The flowers also attract butterflies and bees. The mature shrub will reach three to four feet and make a wonderful hedge if trimmed up after the last blooms have finished.

Other sages that work well in our area include Silver sage, *Salvia argentea*; Pineapple sage, *Salvia farinacea*; Mexican bush sage, *Salvia leucantha*; Scarlet sage, *Salvia splendens* and Lilac sage, *Salvia verticillata*, plus a host of others.

Silver sage has flat, one foot long rosettes of white flowers that are tinged with pink or yellow. The leaves are six to eight inches long and the branched flowering stems can grow as long as four feet. Its low growth habit and color makes it a great candidate for use at the front of a border to provide an eye-catching effect.

Pineapple sage will grow to about two to three feet in height and is covered with light green leaves that have a fruity scent and taste. The flowers are red and are formed in short spikes. It flowers mainly in the fall. Some people like to use the leaves in cold drinks and fruit salads.

Mexican bush sage will grow a little taller than Pineapple sage, to about three or four feet, and has graceful arching stems that are covered with grayish green leaves. This sage sports its flowers in long cascades of white flowers which will provide color through the summer and fall. Some forms will have purple or pink flowers.

Scarlet sage is a branched plant that grows from one to three feet tall, depending upon the variety, and has bright green leaves. The flowers are generally scarlet, but other colored forms are available. These flowers grow in tall, dense clusters. Although this plant can live for an indefinite number of years, the plant is often grown as an annual so reseeding each year may be necessary.

Lilac sage grows in one to three feet clumps with stems that tend to grow up into the air, instead of hanging down. This sage has broad, heart-shaped leaves and stems that support long, branched flowers stalks. It is upon these stems that the purple-blue flowers are borne. These flowers generally appear in the spring and hang around through the fall. As the name implies, it reminds us of the lilac bush that grows only in higher elevations.

There are many other species of sage that could be grown in our area. Those listed are just a few that could provide color and variety to any landscape, but, why limit ourselves? If you have the room give some of the others a try and see how they fit into your landscape plan.

The many species of sage can make a great addition to any desert landscape. Not only do they add color and texture, they also attract birds and butterflies to the yard. The next time you go looking for a landscape plant, you might want to consider the look and feel provided by the species of *Salvia*.
The heavy rains of the past week have left standing puddles and pools in places where one would never suspect. Now is the time to tour your property and search out and eliminate places where mosquitoes might quietly lay their eggs and produce a host of new generations of this serious pest.

We are already seeing significant amounts of these pesky pests flying around Pinal County and many people have been bitten in recent weeks. We must not forget that many of these mosquitoes may be carriers of dangerous diseases, like West Nile Virus, encephalitis, and perhaps in the future the Zika virus.

While there have been no known reports at this time of the Zika virus in Arizona, we definitely must contend with the other two. Please remember to always be on guard against these pests and to protect yourselves and your loved ones. Please take a few minutes and search out and eliminate any standing water that might harbor these pests.

The best protection against mosquito-borne diseases is to reduce or eliminate the mosquitoes that transmit the disease. You can most effectively reduce the number of mosquitoes around your home and in your neighborhood by protecting or eliminating the standing water in which mosquitoes grow and breed. Here are some suggestions of what you might need to do.

- Walk around your property. Search out, drain, and get rid of anything that can hold water, such as tin cans, containers, and used tires. Old tires rank among the most important mosquito-breeding sites in the country.
- Drill holes in the bottoms of your recycling containers and outdoor planters. Check uncovered junk piles for standing water and drain them immediately.
- Clean any clogged roof gutters. Check storm drains, leaky outdoor faucets, and window wells for persistent water pools.
- Empty accumulated water from wheelbarrows, boats, cargo trailers, pet dishes, toys, and ceramic pots. If possible, turn these items over when not in use.
- Change the water in the birdbath every few days. Do not allow water to stagnate in ornamental pools, water gardens, animal watering dishes and swimming pools or their covers. Swimming pools should be cleaned and chlorinated when not in use.
- If you know of a swimming pool or other decorative pond that is not being properly cared for, speak kindly to the owner and see if he or she will soon be doing the maintenance. If you know of abandoned pools with no one to care for them, contact the Pinal County Division of Environmental Health for more information.
- Survey and decide whether or not you need to alter the landscape of your property to eliminate standing water. Keep in mind that during our warm spring weather, mosquitoes can breed in any puddle of water.
- Make sure all of your window and door screens are “bug tight.”

Avoid Mosquito-borne Diseases
Check your outdoor lights. Incandescent lights attract mosquitoes, whereas fluorescent lights neither attract nor repel mosquitoes. Consider changing to fluorescent bulbs where possible.

Stay indoors at dawn, dusk, and in the early evening when mosquitoes are most active. If you must go outdoors, wear a long-sleeved shirt and pants.

Insect repellents when applied (sparingly) to exposed skin deter mosquitoes from biting. Spray thin clothing with repellent because mosquitoes can bite through loosely woven cloth. The American Academy of Pediatrics recommends that repellents used on children contain no more than 10 percent DEET, the active ingredient in mosquito repellents. Be sure to follow all directions on product labels. Call our Cooperative Extension office for a bulletin that will describe the proper use of repellents.

If you have horses, goats, sheep and other livestock animals, check with your veterinarian for vaccination requirements. Horses, which are particularly susceptible, must be vaccinated for protection against the disease.

Aerate ornamental pools to prevent development of mosquito larvae, or stock them with mosquito fish. Fish are an excellent treatment for ponds and horse troughs. Mosquito fish have a voracious appetite for mosquitoes and their larvae. As I watch the fish in our back yard fishpond, the mosquito fish seem to be saying to mosquitoes and other passing insects, “Please fly close to the surface of the water!” and “Please come lay your eggs in my pond!” They have huge appetites for insects.

Learn all that you can about mosquitoes and West Nile Virus. A good source of information is the Pinal County Environmental Health website at http://www.pinalcountyaz.gov/EnvironmentalHealth/Pages/MosquitoInformation.aspx on the internet. I would encourage anyone who has questions about the disease to visit this site or to contact them directly. There is also a link on their page to file a complaint.

In order to protect ourselves from disease, it is important that all of us work together to minimize the risks that come from living in the desert.

Trade names used in this publication are for identification only and do not imply endorsement of products named or criticism of similar products not mentioned.
With the recent rains and the extra irrigations that you have had to make to get gardens and landscapes through the summer, it may be a good idea to think about the levels of available nitrogen within the root systems of your plants.

Nitrogen is a key nutrient required by all plants. In our soils it is often lacking. In other parts of the world where there is sufficient rainfall to support lush plant growth, nitrogen usually is more plentiful, but not here. Experienced desert gardeners know that if they want to be successful, they have to add nitrogen regularly to the soil.

Nitrogen is essential to all plants because it is used in the development of amino acids, the basic building blocks of all living things. Amino acids are used by the plant to form proteins which make up the different tissues of plants. Nitrogen also plays a key role in the development of chlorophyll, genetic material, and enzymes. Every one of these uses are key to growing healthy plants.

Plants deficient in nitrogen usually have pale yellow leaves. Because plants can move nitrogen around in the plants, these affected leaves are usually the older ones on the plant, not the ones at the top of the plant. If you see yellowing on older leaves, it may be a nitrogen deficiency.

To properly manage soil nitrogen, it is important to understand several key scientific rules that govern nitrogen in the soil. To do this, we need to take a look at nitrogen down at the molecular level. I need to get a little technical here, so please bear with me.

Nitrogen is an element, one of the basic forms of all things that we touch, smell, and hear in our everyday lives. It cannot be divided up into smaller units, unless we get down into the atom itself. Fortunately, we do not need to do that here.

As an element, nitrogen can be found in many forms. By itself, it is a gas like oxygen and water vapor. In fact, over 78% of the atmosphere that we breathe is nitrogen gas. It doesn’t hurt anything, but it is in a form that plants cannot use. It has to be converted and moved into the soil before plants can pick it up.

In order to be changed into a useable form, nitrogen gas must be combined with either hydrogen or oxygen. This conversion process is called “nitrogen fixation.” Nitrogen can be fixed in a couple of different ways. It can be fixed by various soil organisms. Some of these live in nodules on roots of legume plants, like beans and peas, and others live free in the environment. The nitrogen fixed in this manner can be used directly by the legumes themselves, or by other plants when the legume plants die and decompose in soil. Nitrogen can also be lost back to the atmosphere during the decomposition process.

Lightening can also fix nitrogen gas into forms useful to plants. Rain then washes the nitrogen into the soil. Did you ever wonder why plants seem to perk up after a thunder storm? It isn’t just because of the rain.

Nitrogen is taken up by plants primarily as nitrate or ammonium ions. An ion is an element or a molecule that has an electric charge, either positive or negative. These electric charges act just like the poles on a bar magnet. When we try to push to bar magnets together they either attract or repel each other. Two like charges, such as when the two positive ends of magnets are pushed together, repel one another, while two unlike charges, a positive end and a negative end of two magnets, attract.

**Nitrogen. . . Continued on Page 6**
These electronic charges are important because they affect how nitrogen behaves in soil. Since the plant food forms of nitrogen are ions and have either a negative or a positive charge, they are affected greatly by the chemistry of the soil. The cake and ice cream form of nitrogen, the form that plants like best, is nitrate. It has a negative charge which pushes it away from the overall negative charges on the individual particles of soil that surround it. Because nitrate is so mobile, it can easily move with the soil water to the roots. Of course, it can also be easily lost below the root zone when we over water.

Another form of nitrogen that plants will take up, but in less amounts than nitrate, is ammonium. Because it has an overall positive charge, it tends to be attracted and held by the negatively charged soil particles. For this reason it is typically less available to plant roots. It can also be changed rather easily by soil organisms to the nitrate form when temperature, aeration, and moisture conditions are favorable.

Here are the take home messages from all of this. Nitrogen is rather fragile in the soil and you have to take care of it. Because it is highly mobile in the soil, it can easily be washed out of the root zone of plants if we are not careful. Irrigate wisely, especially after fertilization.

If you want your plants to be successful, you will have to fertilize. You can do it in one of several ways. You can grow plants high in nitrogen, soft, succulent plants for example, and then turn them back into the soil to decompose. Many organic farmers use cover crops for this very purpose.

You can also use high nitrogen manures. Poultry manures contain the most nitrogen. If we use poultry manure, we have to be careful because there is so much nitrogen there that it can burn tender roots. Organic farmers like to use a slurry of chicken manure for their crops. Cow manure is also useful. If we use manures for fertilizing, it is best to compost them first to get rid of disease organisms.

The most common method of adding nitrogen is to apply a standard nitrogen fertilizer like ammonium sulfate, 21-0-0, ammonium phosphate, 16-20-0, or urea 46-0-0. I sometimes like to use ammonium nitrate, 34-0-0, because it gives me a quick delivery of immediately available nitrate plus an addition of ammonium for a longer lasting action. If you your garden according to organic standards, you will want to use compost or blood meal.

Because many of our landscape trees and shrubs are legumes and can fix their own nitrogen from the air, it is not necessary to fertilize these plants except, perhaps, at planting when we often add a starter tablet. Mesquite, palo verde, ironwood, cassia, and sweet acacia are legumes commonly planted in desert landscapes.

Water easily dissolves nitrogen in the soil and, because it is not held tightly to the soil particles, can easily leach the essential nutrient from around the roots of our plants. It is a good idea to feed our plants in the late summer or early fall of the year with an application of nitrogen fertilizer to keep them at their best.
The fall sweet corn planting window opens on August 15 and that day also marks the beginning of the fall gardening season. If you are thinking about a fall garden, now is the time to begin preparations.

Sweet corn, in its many varieties, makes an excellent fall garden crop, provided it is planted early enough to avoid the freezing weather that usually arrives sometime around Thanksgiving give or take a few days. It also has to be planted late enough in the summer to ensure that the temperatures have moderated in the fall by the time that tasseling and kernel formation begins. High temperatures can affect the viability of the pollen and low pollination can result in ‘skips’ or empty seed sockets. August 15 is usually the best time to plant 90 day varieties to ensure a good harvest.

Sweet corn varieties will all have different lengths of growing seasons. Some varieties take 90 days to mature while others can finish up in 60 days or less. The days to harvest are listed on the seed packet. You can plan your harvest by counting back on the calendar the number of days to harvest for each variety.

Sweet corn is a great garden crop because it is easy to grow, because it is a tall plant that easily outgrows weeds, and because it is a tasty harvest that most people love to eat. Plant the seeds into loose soil about one inch deep and keep the soil moist until the young plants emerge from the ground. Then water frequently enough to ensure that the plants do not stress for water the rest of the growing season. Fertilize two or three times during the growing season with a nitrogen fertilizer for best results. If you are a first time gardener, or new to the desert, sweet corn is a great crop to begin your gardening journey.

If you are an experienced desert gardener, you will know that there are actually multiple key dates for fall vegetable gardens. Mid-August is the time to plant cole crops, like broccoli and cauliflower. If you are brave, and fortunate that the whitefly season is light, a fall planting of squash and melons can go in about the first of September. September 15th is the magic date to begin planting leafy vegetables, root crops, and most flowers.

Temperature and the length of day are the two guiding forces that determine when the seed of a particular variety should be put into the ground. Temperature is important because most plants have a maximum and a minimum limit above or below which they simply die. They also have a range of temperature where they do their best. Tomatoes, for example, do not set fruit well when the daytime temperatures go up above 90 degrees F.

Day length is important because there must be enough hours of sunshine for the plant to effectively produce enough food through photosynthesis to support it clear through its growing cycle. In addition, many plants are sensitive to whether the days are lengthening or whether they are becoming shorter with each passing day. For these and other reasons, there is a preferred time to plant most garden plants. If we do not follow the guidelines, we often see dramatic failures in the garden.

Among the hazards of fall gardening, in addition to temperature and day length, are the various types of insect pests. The whitefly in particular is a difficult fall garden pest and favorite plants include squash, melon, pumpkin, and tomato. Their feeding can cause great stress on these plants. As temperatures cool off in the fall, whitefly populations begin to decline. Because of this some gardeners choose to delay planting until later in the fall.

For the other well-known vegetables like leaf and head lettuce, spinach, collards, radishes and turnips, plan to seed those on the September 15th date. Hold off on planting potatoes until November and early December. They need the moderate temperatures of spring to mature.

Good soil preparation is critical in the garden. Before planting, the soil should first be well tilled by spading or with a mechanical tiller. Make sure that all of the clods are broken up and that the soil is leveled so water will not flow away from the plants.
A heavy application of compost or decomposed steer manure during soil preparation will improve water penetration, soften the soil, and reduce the number of clods that have to dealt with later on. It is also a good idea to add one half pound of ammonium phosphate (16-20-0) fertilizer per 100 square feet before tilling the soil to ensure plenty of nutrients for the tender young plants once they begin to grow. If you prefer an organic nitrogen source consider chicken manure, fish emulsion, or blood meal.

Do not stress the germinating seeds and young seedlings for water during their early stages of growth. Regular light irrigations with a misting hose attachment, a sprinkler, or drip system will apply water uniformly to the garden without washing out the seeds.

All plants should be placed into the soil according to the instructions on the seed packets. The many different vegetable and flower plants each have specific planting depth requirements. Placing seed at the correct depth is critical to the success of all garden and flower plants.

When preparing your soil for planting, do not forget to plan when and how you will continue to add compost to your garden. The small one-celled micro organisms that live in the soil do their best work breaking down the organic matter when the temperatures are warm. The hotter it is, the faster they work. Because of this, the compost added at the beginning of the season may be gone long before the longer growing plants are harvested, especially if the thermometer readings stay up above the century mark well into October.

To maintain good soil organic matter levels in my vegetable and flower gardens I like to top dress my seed beds with compost after the plants have germinated, emerged from the soil, and have gained at least two or three inches in height, depending upon the type of plant. If I have time, I may also add another layer mid season. Then, when I terminate the crop or flower bed in transition to the next planting, I till in the remaining compost plus the crop residues into the soil. This practice helps me to help maintain top quality soil conditions.

There are other gardening tasks that are important. One critical assignment is to make sure that irrigations occur as necessary throughout the season. Infrequent irrigations can lead to a slowing of plant growth and a loss of vigor. This can be a problem when the plant is at a critical stage of development, such as flowering or maturing fruit. In addition, do not forget to feed your garden plants occasionally with nitrogen fertilizers to keep them green and healthy.

With proper care and good timing, vegetable and flower gardens can provide both food and color for the coming outdoor season.

If you have questions about this newsletter, have any plant related problems, or wish to have a publication sent to you, please call (520) 836-5221 x204 or (520) 374-6263 and leave a message. If you have a plant problem and are able to email a picture, please send a picture with any information you can provide about the plant, and your contact information to our diagnostic team at macmastergardener@gmail.com and a Master Gardener will contact you.

This newsletter is available to view on our website at:  http://extension.arizona.edu/pinal

Richard D. Gibson
Extension Agent, Agriculture

RDG/te/sh/aw

59 mailed copies
262 emailed
Have a sick plant or just questions about caring for your plants?

Visit our Plant Diagnosis Clinic held every third Thursday of month from 9:00 am til noon at the U of A Cooperative Extension 820 E. Cottonwood Lane, Bldg. C Casa Grande, AZ 85122

Or you may call the Maricopa Agricultural Center at (520) 374-6263 and leave a message.

If you are able to email a picture, please send it with any information you can provide about the plant, and your contact information to the diagnostic team at macmastergardener@gmail.com and a Master Gardener will contact you.

The next Garden & Landscape Short Course will be held at the

SRP Service Center Eagle Conference Room, 3735 E. Combs Road, San Tan Valley, 85140 from 9:00 am to 12:00 pm.

Classes run from August 23, 2017 to December 13, 2017 from

For more information or to pre-register, please call Lynne Davis, 480-464-4627 or Mary Nielsen, 480-882-1897

How to connect with Rick Gibson online…

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