If you are going to overseed your bermudagrass lawn, you need to do it now while these warmer temperatures hang around.

There is no lawn grass, unfortunately, that will stay green and growing year round. In the summer, bermudagrass hybrids grow well and are generally hardy but they go dormant during the winter months. On the other hand, winter grasses, like annual and perennial ryegrass, cannot take the heat and dry of our summers.

To solve this problem, many turf managers choose to overseed the hardy bermudagrass with winter grasses to keep lawns green and looking good through the winter. Then, in the spring, the winter grasses are scalped back so that the bermudagrass can begin to grow uninhibited. The annual ritual of converting all forms of bermudagrass and other warm weather lawns to a winter-hardy grass goes into full swing around the first of October throughout the desert areas of Arizona. The conversion process is fairly easy to do, as long as a few simple rules are followed.

If overseeding seems right for you, now is the time to start getting ready. The warm temperatures of late September and early October are ideal for overseeding. If you wait until November, the cooler temperatures may slow the germination of the new seed and leave a skimpy, uneven lawn. The patches of bare ground scattered through the seeded area can be quite unsightly. Early October provides excellent temperatures for good germination and growth of the young seedling plants.

The winter grass to plant is ryegrass. You have your choice of either annual or perennial rye. Annual ryegrass seed is fairly inexpensive and germinates well. The grass will stay green well into the spring, only dying out when the heat of June arrives.

There are several benefits to planting perennial over annual ryegrass. Perennial ryegrass has a much finer leaf structure that is less coarse rather than the tall and lanky-growing annual ryegrass. In short, many people feel that perennial ryegrass makes a better looking turf than the annual forms. The finer leaf feature of perennial rye also helps it blow through the lawn mower easier. The more rank annual rye tends to clog mowers. Both the annual and perennial varieties work well in our winter climate.
When preparing to plant ryegrass, it is important to remember that the heat-loving bermudagrass will most likely still be green at the first of October and will continue to stay green until the frosts come. At least my bermudagrass was still green this past Saturday when I did my overseeding. In order to ensure proper seed contact with the soil, it will be necessary to thin out the summer grass growth. This is most easily done by lowering the lawn mower blades gradually until you have scalped the lawn area close to ground level. It is important to remove all grass clippings. If grass catcher was not used, it will be necessary to rake the area with a flexible leaf rake and remove the litter.

The next step is to apply ryegrass seed over the relatively bare surface at the rate of one to one and one-half pounds of seed per 100 square feet. Distribute the seed evenly by hand or with a lawn seeder. Overlap seeded areas to be sure of complete coverage. You can be sure, of course, that this procedure will be watched with interest by every bird in the neighborhood.

After seeding is completed, apply manure or some other organic mulch to lightly cover the seeds. The mulch will help hide the seed from the birds and also help keep the seeds moist between irrigations. The mulch should be evenly distributed to a depth of about one-fourth inch thick over the entire area.

It is critical to keep the seed moist until it has germinated and has developed a root system capable of picking up sufficient water to meet the plants needs. Set the sprinkler to wet the entire lawn area. For best seed germination, apply light irrigations to the seeded area several times during the day, especially during the warmer parts of the day. The germinating seed must not be allowed to dry out during this stage or it will die. If water accumulates on the surface of the soil, it is okay to turn off the sprinkler temporarily, but do not forget to keep an eye on the seed and water again as necessary.

Water accumulating on the soil surface is bad because it may float out the rye seed and expose it to the air, birds, or drying temperatures. Sometimes it will wash the seed into lower lying areas causing an uneven stand. When the water disappears from the soil surface, and the surface of the mulch begins to dry, be sure to start the sprinklers again. Scratch the surface to make sure water has penetrated the manure covering and has thoroughly wet the seed surface.

After the seed has germinated and the area has a green cast, the frequency of irrigation can be cut back to once each day or once every other day. If wilting of the new grass seedlings becomes evident, be sure to water immediately!

The new lawn should be first mowed only when the entire area is approximately two to three inches tall. Use a sharp mower and remove the clippings during the first mowing. Set the mower to cut at one and one-half to two inches above ground level and repeat the mowing when the grass grows about one inch above the set level.

It generally takes about two weeks to get a good stand of ryegrass in the fall, so patience and diligent care are essential.

The transition back to summer grass in the spring is much more simple even than the fall transition. Simply scalp back the annual ryegrass with the mower in May or early June, whenever the nighttime temperatures reach 60° F. on a regular basis, and deep irrigate the lawn. Soon the bermudagrass will start growing again.

With a little advance planning and an eye for detail, beautiful, deep green winter lawns are possible throughout the desert regions of Arizona.
Do you have a saguaro, prickly pear, or a century plant in your landscape? If so, you get to enjoy the beauty and interest of a succulent plant.

Cacti and other succulents are popular landscape plants here in the desert Southwest and there naturally are many questions about these intriguing plants. From the often spectacular flowers to their relative hardiness and nonchalance about heat and drought, these plants definitely have a place in our landscape plant palette. Let’s take a quick look at some of the more important facts about these plants.

When we speak of succulent plants, we are talking about the wide variety of plants that have the capacity to store water for future use. Think of the saguaro and how it swells and shrinks as it transitions between wet and dry conditions. All succulents have this capacity. A mesquite tree, on the other hand, does not have near the capacity for water storage as the roots pretty much pick up the water from the roots and by a direct line carry the water to the leaves without much pause along the way. This is not to say that there is no flexibility within non-succulents to withstand some drought conditions. They do have some flexibility, but that is a story for a different time.

Succulents are also different from other plants in that they have a different way of creating energy from sunlight, the process of photosynthesis. Most plants end up with a three-carbon sugar after it is all said and done. Some plants create a 4-carbon sugar which give them a leg up over the 3-carbon guys, but the succulents have an entirely different pathway called the Crassulacean Acid Metabolism, or CAM for short. I will not bore you with the details right now but just know that this difference gives the plants a huge lift in dealing with desert conditions. When it comes to keeping plants healthy, whether in low water use landscapes, or in the middle of a long term drought, the succulents are among the most resistant.

There is also a huge variety in the make up of the succulents. Cacti definitely fall within the succulent group, but not all succulents are cacti. The agaves, yuccas, and aloes are also succulents. It is important to know the difference. Cacti fall within the major division of the flowering plants that have two food storage organs in the seed. We call this group dicots. The agaves and yuccas are monocots, meaning that they only have one storage area. When it comes time to control (monocot) grassy weeds in a broadleaf (dicot) hedge, these differences become of extreme importance. That also is a topic for the future.

Getting back to our topic, let’s look at the landscape benefits of succulents. First up is the color and variety of flowers. Spring is the time of year to look for and enjoy the inherent beauty of desert flowering plants. Succulent plants bloom with an entire rainbow of colors. For example, many absolutely love the vivid violet of the hedge hog cactus, the waxy white flowers of the yucca, the brilliant red of the ocotillo, the blues of the tiny mammillaria cactus, and the yellows and oranges of the prickly pear. Combined with the bright and cheery yellows of brittlebush and palo verde, a desert landscaped yard can be absolutely spectacular.

Another feature that succulents provide in the landscape is the variety of shapes and sizes. From the thick, juicy leaves and stems of the agaves to the fleshy pads of the prickly pear, there is a huge opportunity to inject variety and diversity into otherwise drab landscapes. The downside, of course, is that these plants have thorns; sharp and sticky thorns. The threat provided by these plants can be offset easily though by placing them in a low traffic area. Some choose to clip the spines at the tips and margins of the leaves of agaves with fingernail clippers or pruning shears to protect passers by and to gain access to clean out weeds near the center of the plant. Some species of cacti are relatively thorn less.

Among the various succulent plants available to desert gardeners are the many species of Agave and Yucca, most of which are well-adapted to the harsh desert climate. Both species have thick, fleshy sword-shaped or strap-shaped leaves coming from a central core, and central flower stalks that come out of the terminal to support white or creamy white flowers. These plants make great specimen plants that attract the gaze and give an authentic feel to desert landscapes.

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The century plant, *Agave americana*, is one of the most popular of the *Agave* species. Its large size and its blue-green color make it a favorite in our area. The plant gets its name from the mistaken idea that it flowers only after 100 years of life. These plants actually flower after 10 to 15 years with a large central stalk that is, in itself, impressive. Other agaves include the *A. filafera*, *A. parryi*, *A. victoriae-reginae*, and *A. vilmoriniana*, the octopus agave.


Members of the *Agave* and *Yucca* genera prefer soil with good drainage and do not flourish when their roots are kept continually wet. For this reason, it is a good idea to make sure that the soil dries out regularly between irrigations to ensure good root health. It is also a good idea to group these plants with other plants that have a similar water requirement to ensure proper irrigation.

The only a few insect pests that are important to succulents. The agave snout weevil, a one-inch long black beetle with a long nose, attacks the agaves, but not the yuccas or aloes. The adult weevils are active during the warm months of early summer and finish their life cycle by laying their eggs at the base of a leaf. The young larvae burrow into the soft tissue of the plant and introduce a harmful bacterium that rots away moist plant cells. It is upon this decomposed organic material that the larvae feed.

Heavy infestations of the weevil can lead to a rapid breakdown of important water and nutrient conducting tissues which in turn causes a gradual drying of the plant. The first symptoms will be a general wilting of lower leaves, but over time, the entire plant eventually dries out. Once the plant is dead, the plant usually can easily be pushed over by hand.

Agave snout weevil can be controlled with a liquid insecticide application labeled for use landscape use every two weeks during the months of May through July when the adults are active. Apply the insecticide to the base of the leaves to kill the adults. Granule formulations can be added to the soil underneath the plant to kill larvae.

The long horn cactus beetle has a healthy appetite for prickly pear and other cacti. The cochineal scale looks like a fuzzy fungus but is really an insect. It also likes prickly pear cacti.

Other pests of succulent plants are cottontail rabbits and the antelope jack rabbits native to the desert. Vertebrate pests can screened or walled out for the protection of the plants.

For those who crave a lush but water stingy landscape, *Agave* and *Yucca* succulents can spice up any desert landscape and give it that finished look.
I believe that I have found the thermo-maximum for red wiggler worms.

Early last year we discussed the value and interest of composting kitchen wastes using red wiggler earthworms. It was not a new concept but it is true that more and more people are finding it a great way to put to good use those pesky kitchen scraps that usually just get tossed into the trash.

I have been tending my worm compost bins now for several years, first at the Extension office and now at home. The worms are quiet and unoffending. If I tend the bins correctly, they are odorless. What more could you ask of a system that accepts peelings, apple cores, and past-their-prime vegetables and gives great compost in return? These systems can be fun and relatively painless to work. I really like the compost that I get when the worms finish their work because it is a great garden fertilizer. I use it as a surface mulch around both indoor and outdoor plants. It is highly nutritious for the plants and serves as a barrier to help slow evaporation and cool the soil around the plants. It can also be mixed with the soil as an additive.

Using worms to make compost is called vermicomposting and a quick check of the Internet under that name will show just how popular it has become. Apparently there are a lot of us who enjoy using worms to clean up the kitchen and to make our own nutritious compost. I tried it out as an experiment and have become a huge fan of the process.

I use red wiggler worms to compost all kinds of kitchen wastes. In addition to vegetable residues, they will also consume ground up egg shells, coffee grounds, and other materials. I do NOT feed them meat scraps, grease, or citrus peels. They do not like them. Meat and meat by-products are usually not recommended for any type of compost, indoors or out. They attract flies and vermin, are slow to break down, and can create unwanted odors. When I clean up the kitchen, I toss these away.

Citrus rinds are filled with highly acidic compounds that can be pretty intense. Take a bite out of a citrus peel and you will see what I mean. I was cautioned against feeding citrus peels to the worms by Linda Leigh, owner of Vermillion Wormery in Oracle, the place where I got my worms. On the other hand, they absolutely love watermelon and cantaloupe rinds. They are not all that finicky in their foods of choice but they do have decided preferences.

If you would like to start your own worm compost system, it is as easy as one, two, and three. Here is what you do.

First, you have to have a container with a lid. There are many sites on the Internet that would be glad to sell you a Cadillac system for a price. The right bin can make the process easy. However, these commercial set ups can be pricey. Since I am a cheap kind of a guy, I chose to make my own boxes out of plastic storage bins. You know the kind that has a tight lid and is good for storing all kinds of things?
At home I used a regular carpenter drill with a one-eighth inch bit to bore holes in the bottom, the top, and the sides. You want a hole that is large enough that air can circulate but small enough that the bedding doesn’t leak out. Some people make larger holes and plug them with coir, a product made from coconut husks.

Second, select a bedding material for the worms. This will be the place where they live and where you will feed them. Some people use well-aged horse manure, but I personally have found that a soft house plant potting medium also works well. It needs to be moist enough to drip one or two drops of water when you squeeze it really hard in your fist. Too dry, and the worms will die; too wet and they will climb up on the sides of the box.

The bedding material should be at least six inches deep to start, but as the worms work, you will find the level rising. That is good. I top my bedding material with shredded paper from my household shredder. The paper topping helps prevent evaporation of water from the medium, protects the worms, and helps absorb extra water when the medium gets too moist. Because the worms will eventually break them down into compost, it is a good way to recycle all of those small chips of paper that we usually have to toss away.

Third, you need worms. Again, I use red wigglers. They are really good at composing. Don’t try to use them in the regular soil outdoors; they don’t do well there. “Keep them in the box,” Linda told me. You have two basic choices in where you get them: you can purchase them on the Internet or you can buy a start from a local provider. In either case, the easiest way to find them is to search online.

I feed my worms at least once a week but they generally can handle new food every day. I just dig down into the medium a couple of inches and bury my scraps. They will take it from there. For stiff vegetables, such as head lettuce wrappers, I put them into a plastic bag and toss them into the freezer. The freezing breaks down the plant material and makes it easier for the worms to do their thing.

So, let’s return to the concept of the thermo-maximum, or the highest temperature that an animal can tolerate. Some ask me why I keep my worms inside. There are two basic reasons. One is that the temperature extremes in the desert make it hard on the worms. The heat of the summer or the cold of the winter are hard on the worms. Heat, especially, can be lethal. The other reason is insects. Sphagnum gnats, cockroaches, and other decomposing insects love the moist dark medium and they all live outdoors. I keep my worms indoors where these critters can’t find them.

This past summer, I moved my worm containers outside to a shady place under the carport roof. I said to myself, “Let’s just see how much heat they can take.” Unfortunately, I found out. Do you remember when the temperatures flirted with 120°F? I have been waiting since then to see if there were any that escaped, or whether any existing eggs would hatch. I have waited in vain. I can now definitely say with first hand experience that the higher of temperatures of summer can have lethal effects on red wiggler worms.

The take home message is, no matter whether you are an experienced worm composter, or new to the process, when the temperatures of summer begin to heat up, you may want to place your worm containers in a place with some kind of air conditioning.
Common bermudagrass has its benefits as a desert-adapted turf grass, but it can be a tough weed to control.

*Cynodon dactylon*, bermudagrass, is an excellent turf grass for the desert areas of Arizona. The common strain, the one that produces seed heads, loves our hot environment. When it is correctly maintained it makes a great lawn. It poses relatively few problems and can be kept looking nice with a minimum of effort. It thrives in full sun. Heat does not seem to bother it. It is fairly resistant to the diseases and insects that can devastate other grasses. When stressed or damaged in any way, with proper care it usually springs back quickly to its normal good-looking self.

Yes, there are problems with common bermudagrass that make it undesirable to many people. The pollen can drive people with allergies nuts. It requires regular irrigations to keep it looking at its best. It is a moderately course-featured grass that some people find unattractive, and, when it escapes from a lawn area, it is a ferocious weed that it difficult to control.

Why is that when common bermudagrass escapes and becomes a weed, it can be a serious problem? One reason is that the seeds are relatively light and can easily be blown into a favorable spot. The plant can also reproduce itself by above ground stems, called stolons, that creep across lawn borders and into places where we do not want them to go. Perhaps worst of all, underground stems, called rhizomes, can move unseen in the soil to colonize new ground. Each of these modes of reproduction can make the plant an aggressive, hard-to-control weed. What can we do? There are several options.

The easiest and simplest is to use a non-selective, translocated weed killer. They work quite well against bermudagrass. If those terms are unfamiliar, let me explain.

Weed-killing herbicides are chemicals especially formulated to kill weeds. Some weed control chemicals are selective, meaning that they will kill only one type of weed, such as a grass or a broadleaf plant. Non-selective weed killers don’t care. They pretty much will kill any type of plant. Translocated means that it is absorbed by the leaves and moved through the plant vessels, the structures that perform the same functions as our veins and arteries, to other parts of the plant.

Glyphosate, the common name for the herbicide most commonly used to control bermudagrass, is a non-selective herbicide. That is, it will kill both grasses and broadleaf plants. It is also translocated so that it is absorbed into the plant through the leaves and moves within the plant to the roots and rhizomes where it takes its lethal action.

Because bermudagrass has those underground stems that can quickly develop new plants, just killing the tops will not do much good. That is why a translocated herbicide, in this case glyphosate, works so well against this difficult weed. There are many products on the nursery shelves containing the glyphosate active ingredient, some of which are less expensive than others. Make your selection and then follow the label directions for peak effectiveness.

Some people would prefer not to use an herbicide to control weeds. In the case of bermudagrass, there are no simple, quick-acting options to eliminate the plant. There are, however, some ways to slow down its growth, even kill it, without using herbicides.

Weed barriers sold to inhibit weeds can slow down the growth of bermudagrass for a short period of time, but this aggressive weed will eventually push its way through the plastic cloth, black plastic, or thick layer of newspaper to resume growth. Soon its tops will start sticking up through the barrier and then it is off and running like nothing ever bothered it. These materials can work well in the bottom of a raised bed garden, for example, but eventually, when the grass pokes through to colonize the soil above the barrier, the bed will need to be emptied, new barrier material laid down, and new soil uncontaminated with roots or stems placed on top of the barrier. While good, it will be a continual cycle to keep the weed under control.
Another way to slow down bermudagrass is to use a thick layer of compost or straw laid on top of the soil. First, eliminate the tops of the bermudagrass plant. Then lay down a layer of the covering, the thicker the better, and then keep an eye on the spot. The bermudagrass will regrow, but it will be slower and spindlier because of its transit through the layer. Then, using a push-pull hoe, one can slide the tool edge back and forth under the mulch to cut off the stems of the bermudagrass plants.

When using this method, it is important to not let the grass grow above the surface of the mulch as it will begin to photosynthesize new energy to replace that which was used up to grow through the mulch. If done consistently in this manner, the recurring cycle of growing and cutting will cause the plant to expend its energy reserves. Eventually the plant will become too weak to support its life functions and die. Again, this is not a quick and easy process, most people do not have the patience or time, but bermudagrass can be killed in this manner without chemicals.

Some have tried pouring boiling water on the bermudagrass to cook the plant tissue. Some have used a gas torch to flame the weed. Aside from being dangerous, these options will only kill the tops of the plant, not the rhizomes, and the plant quickly grows back from those pesky underground stems. The same is true of vinegar-based solutions sprayed onto the leaves of the plant. Left to itself, regrowth will soon occur. However, like the mulch concept above, continual removal of above ground portions without giving time for photosynthesis, can starve the plant to death.

However, one way that you would think would work, doesn’t. Do not try to kill bermudagrass by simply withholding water. Many have tried and failed, including me. I am transitioning my bermudagrass patch of lawn to non-allergenic St. Augustine grass. In one location, I did not irrigate for two years, hoping, which out much confidence I might add, that the underground stems and roots would die. Silly me. As soon as I irrigated just one tiny spot, back came the bermudagrass. Starving it for water and hoping it will die only creates a sad looking lawn area.

The last way to slow down bermudagrass is to plant something that will out compete it for water, nutrients, and sunlight. I have had better luck in my conversion to St. Augustine where I have simply transplanted St. Augustine plugs into the bermudagrass lawn and kept it wet until it started to grow. St. Augustine grass will definitely out compete bermudagrass because it tends to grow over the top of the bermudagrass and shade it out. The conversion goes even faster in shady areas because the bermudagrass prefers full sun, while St. Augustine will grow equally well in both sun and shade.

Bermudagrass can be a tough weed to control, but with the right tools and a little know-how, it is definitely possible.

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

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