

## Things to Expect and Do

The fall and winter of 1996 could be crazy seasons. October in the desert started with record heat and then went on to record cold with rain and wind thrown in for good measure. November usually brings some complacency in the garden while we enjoy the nice weather and keep cutting roses, picking tomatoes and seeing few, if any, weeds popping up. October's quirky weather spooked the roses, nipped the tender vegetables (tomatoes and sweet potatoes), and who knows what the weeds are going to do.

Overseeding has gone on as usual, and lawns should be done by the end of November. The question about fertilizing rye always comes up. When, what, and how much seem to be the mysteries.

Suggesting when is difficult if you consider at what stage the grass is. Lawns planted in mid-September should be fertilized in late November or early December. Lawns started later will differ. Another consideration is if the lawn was "front-loaded" with a slow-release fertilizer at planting time. One rule of thumb for non-"front-loaded" lawns is to fertilize after three or four mowings. The cooler the

weather, the better a nitrogen fertilizer containing the nitrate form will work. The rates are around 1/2 to 1 pound AN/1000 square feet. Remember, we are talking about *perennial* rye; annual rye should *not* be planted.

Gardens planted with winter vegetables need the sun's warmth on the soil. Mulches cool the soil and thus retard the growth. Keep the soil open and exposed to the sun for best results. If you haven't planted carrots yet, try getting a few packs of different varieties and mixing them all together in one container, then planting. When you harvest next spring you will get a surprise every time you pull one. Use onion sets (not for bulbs - rarely are there varieties that bulb well here) but for the most luscious scallions you can grow. They come quickly and you can replant two or three times during the season.

Citrus frost protection might be needed this year. It's been so long we may have forgotten that citrus is sensitive. Young trees should have their trunks wrapped and the crowns covered with a cloth material. Older and larger trees can have a large wattage light bulb hung pointing towards the trunk. Remember, the higher the wattage, the more heat. Use an outdoor bulb or spotlight for best results. An indoor bulb might burst if moisture falls on it so protect it with a can.

Personally, I hope we get a cold winter. It makes the bougainvilleas come back with a vengeance, prunes citrus and jacarandas, gets rid of some ficus trees, makes greens sweeter, kills some critters, gets rid of some ficus trees, makes Bermudas go dormant, lets deciduous fruit trees get a true rest, helps the look of bulbs and gets rid of some ficus trees.

*Terry H Mikel  
Extension Agent  
Commercial Horticulture*

## EXPLOITING INSECTS FOR WEED CONTROL

Whenever we think of the term "biological control," we usually think of insect predators such as lady beetles feeding on insect pests such as aphids. However, as the recent outbreak of white-lined sphinx caterpillars reminds us, insects may also feed on and control weeds.

Weed control using insects can be a complex and sometimes explosive issue. One concern is that the insects will eat not only the weed but also crops or related endangered plants. For that reason, potential biological control agents are tested against a series of plants both related and unrelated to the target weed. Only those that feed on only one or a few closely-related species of weeds are approved for further testing.

Most of the research on weed control by insects has been focused on rangeland weeds, but a few common Arizona weeds also have been studied. For example, in the 1960's two tiny weevils, the puncturevine seed weevil and puncturevine stem weevil, were released. Together they have produced good control of puncturevine in the warmer parts of the State. Scientists also are starting to study some insects that feed exclusively on salt cedar (Tamarix).

For those interested in pursuing this topic further, a new manual, **Biological Control of Weeds in the West**, has just been published by the Western Society of Weed Science in cooperation with Montana State University. It contains individual fact sheets of each weed and the insects that may be used to control it. The fact sheets are loaded with beautiful color photographs and a great deal of useful information about the life history of each organism. For information on how to obtain a copy, call Roberta Gibson at (520) 568-2273.

*Roberta Gibson  
Research Specialist  
U of A Ag Center*

(Friends and fellow Master Gardeners can send notes and cards of appreciation to Gail Morris (see "Moving On"), 4341 East Broadway Road, Phoenix, Arizona 85040 c/o *Communicator*.)

## MOVING ON

I was glancing through the old issues of the *Communicator* that I've worked on and noticed they go all the way back to 1992. For a bit over four years I have had the honor of dealing with some of the best gardeners in the field, and now I feel it's time to pass this lucky gem on to another rabid editor.

One thing I do know is that the Master Gardener program is blessed with many talented people with much to share. So, as we approach the Winter Solstice, then begin growing again towards the warmth of Spring, I am passing on my editor duties to another talented Master Gardener willing to expand his/her horizons.

If you are interested in applying for the challenging position of *Communicator* editor, please call Shanyn Hosier at 470-8086 Ext. 306.

*Gail Morris  
Editor/Master Gardener*

## A HEARTFELT "THANK YOU"

Many, many thanks to Gail Morris for the outstanding job she has done editing the *Communicator*. For the past four years Gail has identified exciting gardening topics, recruited talented writers, and edited and organized the information to create an excellent publication. Under Gail's leadership the *Communicator* has grown beyond a newsletter for Master Gardeners in Maricopa County, Arizona to become a widely-respected journal on gardening in the low desert.

Gail and her whole family have given tremendously of themselves over the years, and we appreciate their generosity and skill. We will miss Gail's calm, organized approach to managing the *Communicator* but look forward to working with her on other writing projects, including Horticulture Publications, Arizona Master Gardener Press books, and hopefully as a guest author to *Roots & Shoots* and the *Communicator*.

*Lucy K Bradley  
Extension Agent  
Urban Horticulture*

## RECIPE FOR ROSES

Remember the saying, "If you can read, you can cook!"? For success in planting bare root roses, read and follow this basic "recipe" for the most beautiful roses in your neighborhood.

### BARE ROOT ROSE RECIPE

**WHERE TO BUY:** Nursery, discount stores and mail order

**ROSE GRADES:** 1, 1-1/2, 2

**ROSE SELECTION** - Buy only #1 grade rose bushes because they will have the best chance of surviving our summer heat. Bare root roses should be planted from mid-December to early February. Make sure each bush has 2-4 strong, healthy canes. Do not buy bare root roses that have spindly canes or roots or have started to leaf out. Bark on canes should be plump and green, not dry or shrivelled. Also, do not buy wax-dipped roses.

**KINDS OF ROSES** - Hybrid Tea, Grandiflora, Floribunda, Miniature, Shrub, Climber and Old Garden.

### PLANTING

1. Soak the entire bush in water containing transplant solution (B-1) for 12-24 hours. Plant roses 3-4 feet apart in a location with at least 6 hours of sun daily. The east side with morning sun is preferable.
2. Dig the planting hole at least 18"-24" wide x 18"-24" deep or 24"-30" deep depending upon the rose.
3. In the bottom of the hole, blend 1 cup gypsum, 1 cup soil sulphur, 1/2 cup treble superphosphate (0-45-0) and 1 cup rose food or other slow-release fertilizer. Add a blend of garden soil, potting soil and forest mulch.
4. Water enough to completely wet the soil mixture.
5. Build a cone and spread the roots over the cone. Cover the roots with the soil mixture and firm the soil around the roots.

6. Trim back the canes to 8"-10", to an outward-facing bud eye. Seal the cuts with any white glue.

7. Water the rose plant slowly and deeply. This helps to eliminate air pockets and keeps the plant from drying out.

8. Water at least every other day for the first two weeks.

**FERTILIZATION - Program 1** - This program uses a **granular, slow-release fertilizer**. In early January or February, after roses have been pruned, use 1 cup of rose food.

April 1	1 cup rose food
May 1	1 cup rose food
July 15	1/2 cup rose food
Sept 1	1 cup rose food
Oct 1	1 cup rose food
Nov 1	1 cup rose food

These amounts are for large roses. Miniatures would use one-half these amounts.

Newly-planted roses should not be fertilized until they have had their first bloom. **Always water before and after you fertilize.**

**Program 2** - This program uses **liquid fertilizer** and requires you to do something every week (April 1 through November 1).

Week 1	Apply a 20/20/20 fertilizer 1 T. per gallon (1 gallon per bush)
Week 2	Apply Epsom Salts 1/3 cup for large bush
Week 3	Apply Fish Emulsion 1 T. per gallon (1 gallon per bush)
Week 4	Apply iron chelate 1 T. per gallon (1 gallon per bush)

Use one-half the above amounts for miniatures in the ground - one-third for miniatures in pots. **Be sure to water well before and after any fertilization program.**

**INSECTS AND POWDERY MILDEW** - Spraying roses with water daily will help to discourage most insects.

Aphids - spray with mild, non-citrus, non-concentrated liquid detergent  
1 T. per gallon of water

Spider mites - spray with miticide

Thrips - spray with insecticide before bud develops

Powdery mildew - spray every 10 days with fungicide

**PRUNING** - Major pruning should be done in January and February. **ALL CUTS SHOULD BE SEALED WITH WHITE GLUE.**

### PRUNING

1. **HYBRID TEAS** - Prune to maintain 3-5 strong, healthy canes spaced uniformly. Prune to 24"-36" to an outward-facing bud eye. Cuts should be made 1/4"-1/5" above the bud eye. Cut at a 45 degree angle, with high side above the bud. Remove all dead wood and old canes. Cut out all crossing growth and weak spindly stems to keep the center of the bush open for sun and air.

2. **FLORIBUNDA** - Most are low growing and will have more twiggy interior growth which will need to be removed. Keep 6-8 strong, healthy canes. Prune only about 1/3 of the bush to an outward-facing bud eye. Keep the center of the bush open.

3. **GRANDIFLORAS** - Prune like the Hybrid Teas, but leave 4-6 canes.

4. **SHRUBS** - Prune only to shape newer shrubs. When mature, remove twiggy growth and older canes. For Old Garden Roses, remove the oldest canes and cut the other canes about one-third.

5. **CLIMBERS** - Remove the weakest new canes, the oldest flowering canes and any dead or diseased canes. Then cut back to two or three bud eyes on the laterals that bore flowers during the last year. The best blooms are on laterals growing from

two- to three-year wood. Retain 5-6 of the most vigorous new canes.

6. **RAMBLERS-ONCE BLOOMING CLIMBERS** - These should be pruned back after flowering in the spring. Cut out dead or diseased canes and remove older, gray canes and weak new canes.

Most climber canes are good for only two or three years. Save the green healthy canes. Cut the laterals that have flowered back to 4-5 buds to shape the plant.

7. **MINIATURES** - Prune miniatures much like the larger roses. Cut back by one-third to one-half. Cut out dead or diseased canes and any crossing canes. Prune to an outward-facing bud eye.

After pruning, strip off all of the leaves and clean the ground around the roses. Then spray the canes and the ground around the roses with fungicide (insecticides also are good). Spraying every 10 days after pruning will help to avoid powdery mildew in the spring.

Good luck!

*Mary Coffman*  
*Master Gardener*

### BOOK REVIEW

**The Herb Gardener** by Susan McClure is a wonderfully descriptive guide for the herb enthusiast. Vivid color photography, information and instruction set it apart. 236 pages, \$29.95.

**Nature Printing with Herbs, Fruits and Flowers** by Laura Donnelly Bethman describes how to press, make impressions and prints from nature. Covers all age groups. Color drawings and color photography, 90 pages, \$22.95.

Obtain the above books at bookstores or call or write:

**Storey Communications, Inc.**  
PO Box 445, Pownal VT 05261  
1-800-441-5700, Dept YP

*Lenora Boner*  
*Master Gardener*

## THE WAR BETWEEN PLANTS AND DISEASES

### Part 2: Resistance, tolerance, and immunity

The difference between these three terms often seems like splitting hairs, but they are important to plant breeders and gardeners alike. *Resistant* plants have the ability to prevent or overcome an infection by a pathogen. *Tolerant* plants can sustain the effects of an infection without serious damage to themselves. *Immune* plants simply cannot be infected by the pathogen.

Plant varieties can become resistant by one of three different ways.

- Naturally - every time a population of plants is exposed to a pathogen, those plants which survive do so because they have the appropriate defenses. They pass these traits on to their offspring, while those without defenses die without producing offspring.

- Selective breeding - this is the same process as above, but accelerated by horticulturalists exposing thousands of plants to a pathogen and waiting for one to survive. The survivor is then introduced to the public as a new, resistant variety.

- Genetic engineering - researchers find the genes responsible for natural resistance, copy them and insert into susceptible plants. This process is very expensive and time consuming.

You may be wondering why we have any susceptible plants left anymore, with all these methods of developing resistant plants. Keep in mind that genetics and breeding are tricky beasts - breeders often lose beneficial traits (like fruit quality, prolific production and dwarfing) when a resistance trait is gained. In addition, what leads to resistance to one type of pathogen may actually make the plant more vulnerable to another. Finally, pathogens are evolving right along with the plants, developing new methods of attack.

Tolerant plants, like resistant plants, do get infected by pathogens, but they just don't react as negatively. Therefore, tolerant plants continue to grow and produce while they are infected. However, they do not grow and produce as well as uninfected plants. This is most often observed with viral diseases.

The mechanism of tolerance is not understood but is likely genetic, since offspring of tolerant plants are tolerant as well.

Immune plants are like impenetrable fortresses to some pathogens. These pathogens can't enter the plant, grow, or spread, so no disease symptoms will present themselves on an immune plant.

Remember, plant pathogens lurk everywhere in your garden and landscape! For a disease to occur, the plant must be susceptible to the pathogen, and the environmental conditions must be favorable to the pathogen (generally, stressful to the plant host). Any one plant variety is resistant to some, tolerant to some, immune to some, and susceptible to some pathogens.

Here are some suggestions for helping your garden survive the onslaught of pathogens.

- Keep your plants healthy - the speed of reaction to an infection can be the key to survival for resistant plants. Healthy plants are better able to resist and tolerate pathogens.

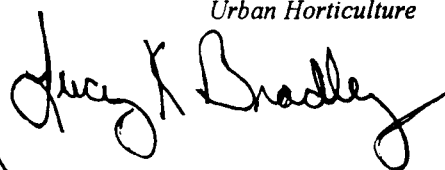
- Make the environment unfriendly to pathogens - increase their competition with beneficial organisms in the soil (the beneficials will win!) by enriching the soil with compost, and remove any diseased plants or plant parts which could help spread pathogens.

- Don't fight Mother Nature - if you know you have problems with a particular insect, fungus, nematode, or bacteria, don't plant susceptible plants in that area. Instead, choose resistant or immune varieties.

*Shayn Goodnight Hosier*  
Instructional Specialist  
Urban Horticulture

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Ramona Tager, *Associate Editor*  
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## HERB RECIPES FOR GREAT GIFT GIVING

Gifts from the kitchen are always appreciated. A little time (and thyme), simple ingredients, some colorful packaging and an original card will produce unique and tasty gifts to please almost any palate.

Although herbal vinegar is almost too familiar these days, it still makes a great gift, especially if it's your own special blend.

### 7-Day Herbal Vinegar

This standard formula can be expanded for quantity: **2 cups vinegar** plus at least **one cup (packed) fresh herbs or at least 1/2 cup dried herbs** (more herbs equals stronger flavor). Let steep for one week. Strain (through cheesecloth or a clean coffee filter), rebottle and add a **sprig or two of fresh herbs**. Do not use containers with metal lids, which will corrode after contact with the vinegar. Use good vinegar (not distilled white). If you want to cut down the steeping time, you can place the jar in the sun and/or heat the vinegar and herb mixture briefly on the stove and let cool before transferring to the jar (do not boil).

Use the down time during the week to make a clever card describing your vinegar. For example, "Mediterranean Medley" could be a basil, oregano and rosemary vinegar.

### 24-Hour Turnaround Herbed Olives

1 7-oz. jar of olives  
2-1/2 tsp. dried herbs (any combination or try 1/2 tsp. each rosemary, thyme, cumin, oregano and fennel)  
2 garlic cloves, slightly crushed  
1 T. red wine vinegar

Drain olives. Return to jar, packing tightly. Add ingredients. Fill with water to top. Shake well. Marinate at room temperature 24 hours, then refrigerate. Make a card while olives marinate (you've got your container). If using fresh herbs, double the quantity and make sure there is no excess water on the leaves.

*Carole Palmer*  
*Arizona Herb Association*

## BULBS FOR THE HOLIDAYS

Potted bulbs are one of the easiest, yet one of the nicest and most appreciated, gifts you can give for the holidays. You can buy them reasonably at nurseries and discount stores or pay substantially more for the convenience and extra variety of catalog shopping. Either way, the lovely colors of forced bulbs brighten up everyone's home during the winter months.

**AMARYLLIS:** Rich reds are the traditional color of holiday amaryllis, but do consider some of the other colors available: pink, white, stripes, salmon. Amaryllis with their tall, sturdy stems and huge flowers are the show stoppers of the season. When the blooming season is over, amaryllis can be kept as a house plant for many years.

**PAPER-WHITE NARCISSUS:** A container of flowering paper-whites with their dainty blossoms against the clean green of the leaves and stems will lighten the darkest room. To many people, these are *the* forcing bulb for winter.

**CROCUS:** Groups of flowering lavender, white or yellow crocus in a shallow bulb pan will lift spirits with thoughts of early spring.

**HYACINTH:** Fragrant hyacinths are the most versatile of the forcing bulbs. They can be grouped in shallow bulb containers for mass color, grown individually in small pots or forced in special glass containers. Gorgeous double flowers in deep pink, lustrous white or lush dark blue fill a room with both color and fragrance.

**TULIP:** Smaller tulip varieties are available through catalogs, although sometimes not locally.

**COMBINATION BASKETS:** Combinations of various bulbs such as tulips, hyacinths, crocus, dwarf iris and oxalis can be found in catalogs. You also can make your own ready-to-grow garden-in-a-basket!

**Note:** Small forcing vases are available which can be used for individual crocus or narcissus bulbs.

*Ramona Tager*  
*Master Gardener*

## IT'S TIME TO START COMPOSTING!

Fall is the best time to get your compost piles cooking! Leaves and ryegrass clippings are available everywhere in your neighborhood, parks, and local businesses. Mix these two "ingredients" together with water and you'll see that compost happens. Nothing is better to mix with your soil, use as top mulch, or add to potting soil. It truly is "black gold" to gardeners, and you just can't make too much.

### Recipe for 21-Day Compost\*

For a 42" x 42" x 42" bin, fill six 32-gallon bags with crushed, packed leaves (a lawnmower makes a great leaf crusher) and six bags with freshly-cut grass clippings. (A pile 36" x 36" x 36" or larger can produce and retain very high temperatures, up to 160° F. Smaller piles will not reach these temperatures, but decomposition still will occur.)

To begin: water the soil at the bottom of the bin to prevent dry soil from absorbing moisture from compost materials. Stand up a vent pipe (with holes for aeration of the pile) in the center. Begin mixing one bag of leaves and one of clippings, fluffing ingredients and moistening as you go. **Proper watering is an important key to successful composting. Ingredients must be moist but not soggy wet - similar to a squeezed sponge.** Add a small shovelful of soil (to add billions of micro-organisms) and 4-5 handfuls of cottonseed meal (optional but a good source of organic nitrogen). This completes the first layer. Add two more layers like the first. At this point, plant scraps from the kitchen can be added (NO meat, dairy, oil or grease). Spread evenly in a 1"-2" layer before starting the next layer of leaves and clippings. Continue this layering process three more times, ending with a leaves-clippings mixture. Cover with the plastic bags to retain moisture.

If you want to monitor temperatures, take temperature readings at the same time each day and in the same location. Twenty-four hours after making the pile, carefully insert a thermometer 6" from the vent pipe. It should give a reading between 120° and 160° F. Temperatures should rise on the second day and begin to drop on the third and/or fourth day. Turn the pile on the fourth day, as temperatures continue to drop, to add oxygen to the pile.

This will allow aerobic, oxygen-using bacteria to again flourish. (These bacteria are efficient decomposers and do **not** produce bad odors.) When turning, be sure to add available kitchen wastes and water, as needed, and to place the less-decomposed materials from the outside edges into the more active center of the pile. This will produce a more uniform batch of finished compost at the end.

This turning process should produce rising temperatures once more within the center of the pile. Turn and water again on the eighth day, being sure to break up any large chunks or matted ingredients. After temperatures again rise and drop, turn a third time, on the twelfth day. At this point the texture and color of the ingredients should be noticeably different and the volume of your pile should be distinctly smaller. After this, temperatures will be warm but lower than during the initial days. During the fourth turning, on day sixteen, avoid adding too many kitchen scraps, since activity is now decreased. Less water is required, and temperatures will stabilize under 100° F. The vent pipe can be removed. The end of the third week, day 21, should provide usable compost. Screening with 1/2" hardware cloth will produce a beautiful, finely-textured "black gold" with a wonderful, earthy fragrance. It's like making gold from straw. Could your name be Rumpelstiltskin?

**Note:** A shaded location will help reduce moisture loss (especially important during hot months) and will keep sunny spots available for garden plants.

\* Source: **Don't Waste Your Wastes - Compost 'em** by Bert Whitehead, Master Gardener, San Antonio, Texas.

*Carolyn Chard  
Instructional Specialist  
Urban Horticulture*

Note: Bert Whitehead's book is available for reference in Carolyn Chard's office. To discuss this book or composting generally, call Carolyn at 470-8086 ext 311.

Cooperative Extension composting publications:  
**Home Composting** (brochure)  
**Make Your Own Compost** (Publication Q230)

## RELEASE OF EXOTIC WHITEFLY PARASITES FOR ESTABLISHMENT IN ARIZONA

**INTRODUCTION:** The silverleaf whitefly, *Bemisia argentifolii*, continues to be a pest in Arizona. Native natural enemies and insecticides have provided only partial relief to growers. Introducing new species of whitefly parasites (there presently are only three species in Arizona) may lead to higher levels of whitefly mortality and consequently to overall lower levels of whiteflies. The goal of this project is to release exotic parasites into a habitat conducive to their reproduction and subsequent establishment in the environment.

**PARASITE RELEASES:** Five parasite release sites (two agricultural, three urban) were established in Arizona in April 1996, and our results indicate the promise of success.

**REQUEST FOR COOPERATORS FOR 1997:** Because of this success, we hope to concentrate release efforts in 1997 in rural home gardens in agricultural communities. If you or someone you know lives in a rural, agricultural community and would be willing to participate by growing whitefly host plants year round, please call **Nick Colletto** at **602-379-6014 (ext. 235)** for more information.

*Juli Gould (USDA-APHIS)*

*Larry Antilla (Arizona Cotton Research and Protection Council)*

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