**Compost Tea**
Information from Dr. Elaine Ingham
written by Lindsay Schramm

Compost tea is a liquid extract of compost that is brewed to release the organisms from the compost: bacteria, fungi, protozoa and nematodes. Also it provides an optimal environment to increase the number and activity of beneficial organisms by using soluble food resources present in the water.

Compost tea provides direct nutrition. It is a source of foliar and soil organic nutrients, chelated micronutrients for easy plant absorption, and nutrients in a biologically available form for plant and microbial uptake.

Microbial functions compete with disease-causing microbes, degrade toxic pesticides and other chemicals, produce plant growth hormones, mineralize plant-available nutrients, fix nitrogen and plant surfaces, become occupied by beneficial microbes, leaving no room for pathogens to infect the plant.

The addition of compost tea helps to create a balanced soil food web in the soil and on plant surfaces. In return, a balanced soil food web will:

1. Suppress disease-causing and pest organisms.
2. Improve the nutritional quality of the plant.
3. Produce good soil structure, improving water filtration, oxygen diffusion and water-holding capacity.
4. Retain nitrogen and other nutrients, such as calcium, iron, potassium, phosphorus, etc.
5. Decompose plant residues.
6. Reduce need for harmful chemicals.
7. Produce hormones that will help plants grow.

**Make your own Compost Tea**

Start with good, finished compost. To ensure that all dis-
ease causing microorganisms have been killed off during the composting process, you need to be certain that all of the compost has reached a temperature of at least 135°F for at least three days but not over 160°F, since, at this temperature, beneficial organisms start to die.

Use good quality water. Some city water has chlorine, which can (and is intended to) kill off many of our desired microorganisms. Make sure that, if you are using city water, you let it sit out in the sun to evaporate out the chlorine or just run bubblers in it for an hour or two. (Chlorine is very unstable in the presence of oxygen and leaving it in a open container allows it to dissipate quickly and completely.)

**Supplies needed**

- 5 gallon plastic bucket
- unsulfured, organic molasses
- old pillowcase, tea towel or nylon stocking (used to filter tea)
- All the following items can be picked up in a store that has aquarium supplies:
  - aquarium pump large enough to run three bubblers
  - several feet of air tubing
  - 1 gang valve (a valve that allows you to make one hose into more than one)
  - 3 bubblers

**Brewing**

Fill the bucket half full of compost. Cut a length of tubing and attach one end to pump, the other to the gang valve. Cut three more lengths of tubing long enough to reach comfortably from the rim to the bottom of the bucket. Connect each length of tubing to the gang valve; attach a bubbler to other end. Hang the gang valve on the lop of the bucket and bury the bubblers at the bottom of the bucket, under the compost. Fill the bucket to within inches of the rim and start the pump. After it gets going, add 1 oz of molasses and stir with a stick.

Let the mixture “brew” for 3 days, then remove equipment. Let the solid compost settle to the bottom; then pour off from the top through your straining material of choice. Tea is ready to use right away and should be used as soon as possible to utilize the abundance of aerobic microorganisms.

Spray your plants, being sure to cover leaf surfaces as well as soil. Can also be applied with water can. Remember, pesticides and other chemicals can kill microorganisms, so if you do use them, be sure to apply more compost tea.

**A Special Invitation**

The Prescott Area Iris Society invites you to enter your iris blooms in the 5th Annual Iris Exhibit, Saturday, May 15, at Watters Nursery. This competition is free and open to the public. To achieve our goal of promoting an awareness and appreciation of iris, we need to have as many different iris on display as possible. The public will vote for their favorite irises and the exhibitors of winning irises will be awarded prizes at the end of the exhibit. For exhibit rules call 776-7217 or email jbook@cableone.net.
Breeding

The thousands of different roses available today all trace their heritage back to the twelve dozen or so species roses, the ones that grow in the wild. The process of obtaining new roses is called hybridization. In this process, the pollen from one plant fertilizes the ovary of another. The plants from the resulting seeds will all be different.

Bees and other pollinating insects can cause this process to happen “naturally.” Man can also create hybrids and has raised it to a fine art in the last hundred-plus years, continually improving both flowers and plants. The overall procedure is lengthy - - from crossing to introduction to the public takes seven to ten years of painstaking work.

Before the cross is made, the hybridizer selects the parent plants, taking into account color, form, hardiness, disease resistance, foliage, and so forth. Next, the outer petals of the selected parents are removed, exposing the reproductive organs. All roses have both male and female parts. In the center of the flower are the female organs - - pistils and male pollen-producing anthers. To prevent self-pollination, the anthers are removed on the “mother” plants. The anthers on the “father” plant are harvested, labeled, and stored. About a day later, a sticky substance forms on the stigmas. The anthers release the dust-size pollen at about the same time, at which point it is brushed on the stigmas.

The rose is now labeled with information such as date and parentage. A bag is placed over the pollinated flower, protecting it from any further pollination. If fertilization occurred, the area beneath the reproductive organs begins to swell. This is the hip, or fruit, of the rose. It ripens in several months, is harvested, and the seeds removed. The seeds are then cleaned and stratified, a process in which the seeds are placed in small containers of peat moss and stored at 40°F. for six weeks, before being planted. Growing in a greenhouse, the first flowers may appear within seven to eight weeks after germination, giving an indication of this new plant’s potential.

A hybridizer may look over as many as a hundred thousand seedlings each year, with 99 percent discarded at some point during the first growing season. What makes this part of the job even harder than it sounds is that sometimes a promising-looking seedling will not do well when budded onto rootstock and grown outdoors. Conversely, an average-appearing plant may exhibit something special when bud-grafted and grown.

The seedlings that pass muster are now ready for field testing and evaluation. More than just one plant is needed for this, so the original seedling is propagated. In order to have additional plants exactly like the parent, new ones are started by taking a cutting of a piece of stem that is the bud, or eye, found at the point where the leaf joins the stem. This is grafted onto a rootstock, a rooted cutting of another rose.

Grafting is necessary because many of today’s complex hybrids root poorly or erratically on their own. Most garden roses are grown on a variety of multiflora rose. Buds are taken from dormant plants in late fall and grafted the following spring or summer. It is as budded, field-grown plants that these new roses really begin to show off. More are discarded and a few fr...
are budded in larger quantities for further testing. Only about a hundred make it to the second budding.

For at least another two to four years this process continues until only a handful remain. Some of the most promising are entered in the All-America Rose Selections judging. Four plants of each variety are sent to the 23 AARS test gardens around the country for two more years of observation. Once a company is ready to introduce a variety, large quantities of plants are budded and grown to marketable age, a period of another two years.

Long and arduous, the process of hybridization is now complete. The new variety, superior in any number of ways, be it color, fragrance, foliage, hardiness, disease resistance, or whatever is now ready to bloom and grow beautifully in yards all over the country. Who knows? It may be the best seller, the one topping PEACE with over 20 million plants sold since 1945 and nearly every home rose garden having one!

**Fragrance**

One rose characteristic which most people expect is fragrance. Watch someone walk by roses in full bloom. First, there’ll be an exclamation over color or beauty but, inevitably, the head will bend in expectation of that special scent we’ve come to expect.

Many years ago Alice Morse Earle wrote, “The fragrance of the sweetest rose is beyond any other flower scent. It is irresistible, entralling; you cannot leave it. I have never doubted the rose has some compelling quality not shared by other flowers. I do not know whether it comes from some inherent witchery of the plant but it certainly exists.”

Elusive, mysterious, the fragrance of roses and the romance surrounding it is legendary. For instance, Cleopatra supposedly entertained Marc Anthony in a room filled with 18 inches of rose petals and the sails of her ship were soaked with rose water so that “the very winds were lovesick.” In the 1300’s, Queen Elizabeth of Hungary, whose beauty ritual included quantities of rose water, was, at the age of 72, able to successfully woo the King of Poland. At a seventeenth-century Persian royal wedding, rose petals were floated on garden canals filled with rose water. Such lavishness attests to both the literal and figurative power of rose fragrance.

Some of the mystery and illusion of rose fragrance may, in part, be due to the fact that there are actually over two dozen different sorts of rose scent, with some roses having a mixture of these various perfumes. The seven basic scents that are most often found in hybrid tea roses include rose, nasturtium, orris, violet, apple, lemon, and clover. Some of the other scents are fern or moss, hyacinth, orange, bay, anise, lily-of-the-valley, linseed oil, honey, wine, marigold, quince, geranium, peppers, parsley, and raspberry.

In general, the most highly-scented roses are ones that are either darker in color, have more petals to the flower, or have thick, velvety petals. Another correlation is that the red and pink roses are most likely to smell like a “rose,” while white and yellow ones lean to orris, nasturtium, violet, or lemon. Orange-shaded roses will usually have scents of fruit, orris, nasturtium, violet, or clover.

Rose fragrance will be strongest on warm, sunny days when the soil is moist because that is when the production of the scent ingredients increases. Often, a rose that was fragrant in the morning is no longer so by late afternoon. A variety which seems immune to the vagaries of weather is CHRYSLER IMPERIAL and SUTTER’S GOLD; they are fragrant even on cool, cloudy days. CHRYSLER IMPERIAL, as well as MISTER LINCOLN, are two of the best roses for potpourri, as they also keep their strong scent after drying.

Another interesting aspect to fragrance is
that it is affected by disease. Mildew, especially, will cause a loss of scent.

No discussion of roses and fragrance is immune to the argument that the “new” roses just don’t have the strong, sweet smell of the “old” roses. Nostalgia withstanding, “it ain’t necessarily so.” Dr. W. E. Lammerts, a rose scientist, did an in-depth analysis in 1951 and found that quite a few of the older rose varieties were either only moderately scented or had no scent at all. In 1956, Dr. James A. Gamble reported in the American Rose Annual that on examination of 3,900 rose varieties, both old and new, 25 percent were scentless, 20 percent strongly scented, and the rest had some scent.

To encourage the development of fragrance in roses, Dr. Gamble endowed the American Rose Society with funds to award hybridizers who produced roses of outstanding fragrance and growth habit. Since 1953, there have been numerous winners. Some are TIFFANY, CHRYSLER IMPERIAL, FRAGRANT CLOUD and DOUBLE DELIGHT.

Beside the roses already mentioned, some other hybrid tea and grandiflora roses with significant fragrance include: ARIZONA, COMMAND PERFORMANCE, ELECTRON, FRIENDSHIP, LOVE, PERFUME DELIGHT, SUNDOWNER, SHEER BLISS, SWEET SURRENDER AND WHITE LIGHTNIN’. Some fragrant floribundas are ANGEL FACE, APRICOT NECTAR, CATHEDRAL, CHERISH, INTRIGUE and SARATOGA: while AMERICA is a climber with a spicy scent.

Endive and Chicory
Cichorium endiva and Cichorium intybus
by Nora Graf

Endive is not something one finds on many dinner tables but I’m sure someone out there is interested. Besides, it’s always fun to try something new. Endive is sometimes labeled as chicory, which is not the broadleaf endive known as escarole. Now that I have confused the issue, I should explain that they are closely related and the names are sometimes confused and in France and England what we call chicory is called endive and vice versa. Whichever name you call it, the plant produces bitter greens and can be an interesting addition to winter salads.

Belgian, French Endive or Witloof Chicory is a member of the chicory and escarole family that has tightly packed leaves and bullet-like shapes. It is creamy yellow or white in color, crisp but slightly bitter to taste.

Chicory or Curly Endive has darker outer leaves, shading to inner leaves of creamy yellow or white. The leaves are bitter and have a ragged edge on thin stems.

Its history goes back to the Greeks and Romans, although ancient Egyptians may have grown it even earlier. Chicory is a European plant that has been introduced to North America and became naturalized. The origin of annual endive is less well-documented and little is known of its history. In American, chicory became known as a substitute for coffee, which is still popular with some people today.

Endives of all types like a rich soil and full sun and should be treated like lettuce. Plant seed indoors and two months before the last frost. Thin the seedlings to 6 inches apart. After four weeks, plant seedlings one foot apart (they should be 4-5 inches tall) and slightly deeper than they were in the original flat. They will probably need shade when the weather heats up. In our area, a fall

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Volunteer Opportunities

Following are some Master Gardener volunteer opportunities. The time you spend on these activities will count toward your volunteer hours. If you have already signed up at the meetings for a particular task you do not need to do so again. Please reply with what you are interested in - give me your name, phone number and email address.

1) Camp Verde Garlic & Gourd Festival (June 12th & 13th) - take a shift at the Master Gardener table to answer questions from the public.

2) Highland Conference - Convention Center @ Cliff Castle Casino, Verde Valley - Oct 18th & 19th. Following are several sub-projects that could use your talents and time.

- Order books, inventory, cover shift at the “bookstore table”
- Introduce speakers, keep track of time, etc.
- Assist vendors
- Cover shift at registration table; collect money for gourds that are purchased
- Secure items and put them in “enrichment” bags
- Help set up before the conference
- Help “tear down” after the conference
- Decorate gourds prior to the conference, to be sold at the conference
- Solicit monetary donations from sponsors (you will be given instructions prior to soliciting)
- Obtain door prizes for the conference

3) We are still looking for an “able bodied” person (some strength is required) who can help get the tables and awning to and from the Prescott Farmers’ Market (Saturdays from May through October). If you have questions on what’s required contact Jonella Blake on 771-9471.

4) Need people who can work with the schools on gardening projects, etc. Desperately need 1 person to chair the sub-committee for Master Gardener school activities, and 2 people from Verde Valley and Prescott to be co-chairs for each of those geographic areas.

If you have questions regarding any of the above, don’t hesitate to ask. Thanks in advance for your assistance.

Mary Barnes
Co-Chair, Volunteer Projects Committee
mcbarn1@cableone.net
(928) 583-0889

Road Trip, Fun, Games, Plants and more plants!

Sign-up NOW for the annual trip (June 19) to the plant sale at the Arboretum in Flagstaff. Master Gardener Patti Conrad is once again leading a merry band of gardeners to this great sale. Not only do they stop at the Arboretum, but they sometimes hit some of the fine nurseries of Flagstaff. The van leaves from Prescott, but you need to call to reserve a seat. 928-778-4810

Educational Opportunities

Watters Nursery
1815 Iron Springs Road
Prescott 928-445-4159

April 3-Using Herbs in the Landscape
April 10-Garden Visitors, Friend or Foe

Garden Tours
May 22-Sedona Garden Tour

Desert Botanical Garden
Galvin Parkway
Phoenix 480-941-1225
www.dbg.org
Fee charged

April 1- Butterfly Gardens
April 7- Contain Your Herbs
crop will probably work better. If you are planting the Belgian type, plan for a long season; it needs 100-120 days for the roots to develop.

If anyone is interested in forcing Belgian endive, you can do it in a container. Now I have never tried this, so if someone has, let me know if you succeeded or not. To create the blanched white plants that are famous, sow seeds in the spring. Dig the plants in the fall and cut off the tops two inches above the crown and trim the roots. Set the plants in an upright position in a container. Fill with potting mix to the tops of the roots and then add six to eight inches of sand. Keep moist and at a temperature between 50-70°F. Cooler is better, the slower it grows the tighter the heads will be. Harvest when the tips of the plant start to show through the sand.

Endive can be used in salads or cooked.

Good Luck!

**Extra Easy Chicken & Endive**

4 Tablespoons salad oil  
2 Tablespoons melted butter  
6 chicken legs with thighs attached  
6 large endive (more if smaller)  
salt and pepper  
12 whole shallots

Combine oil and butter and brush over chicken and endive, covering thoroughly; sprinkle with salt and pepper. Place chicken in a casserole. Peel shallots and arrange around chicken. Top chicken with endive and any remaining butter and oil. Seal casserole with aluminum foil and cover with a lid. Bake in a preheated 375°F oven for 1 1/2 hours.

*from the The Victory Garden Cookbook, by Marian Morash*
MG Association Meeting, Wednesday, April 21, 6:30pm, Cottonwood.

Our speaker will be Elin Doehne. She will be speaking about wild-flowers

May 19, Prescott, speaker —Georgene Lockwood will talk on Herbs and Flowers.