



## Events & Activities

MG Association Meeting, Wednesday, June 17, Cottonwood 6:30pm, See address page for map. Our speaker will be Diana Dearborn.

Alta Vista Gardening Club, Prescott, fourth Tuesday of the month, 12:30pm. Call 928-443-0464 for location and information.

Prescott Area Gourd Society, third Tuesday of the month, 6:30 pm, at the Smoki Museum.

Prescott Orchid Society, meets 3rd Sunday of the month, 2pm at the Prescott Library, call Cynthia for information. (928) 717-0623

Prescott Area Iris Society call 928-445-8132 for date and place information.

Verde Valley Iris Society call Linda Smith at 928-567-7470

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University of Arizona Yavapai County Cooperative Extension

# Yavapai Gardens

## Master Gardener Newsletter

June 2009

## The Magic of Seeds

by Nora Graf



They are packed in plastic bags, jars and paper packets. They get jostled around, shifted from location to location, (sometimes hot, sometimes cold), just waiting—waiting for those conditions that will transform it. From a dry hard object, green springs forth and a new plant grows. Seeds are magical. If you don't think that, you should.

Seeds are the result of pollen and the stigma of the plant meeting. The stigma is stationary while the pollen is released and must find the stigma. Pollen can be moved around by wind (the most important), insects, (orchids have especially interesting relationships with insects, along with yuccas,) birds, a few bats and the most rare, by water.

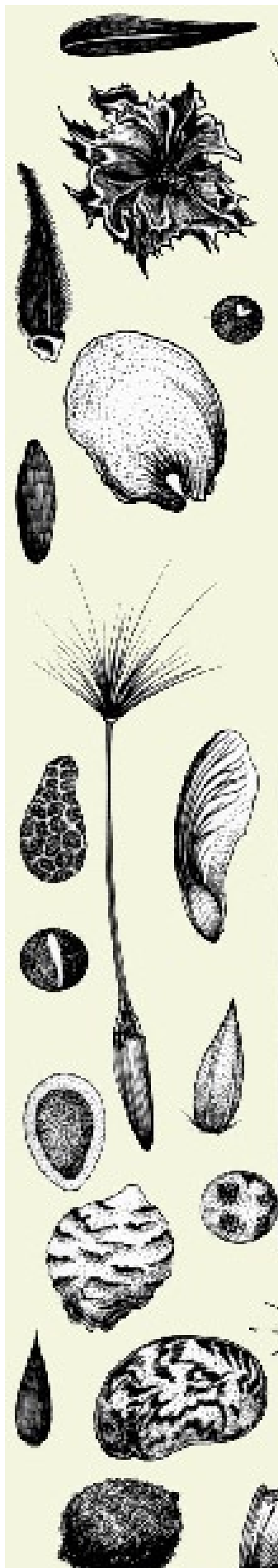
Once the flower has been pollinated, the petals wither away leaving the ovary with ovules inside. Within the ovule a seed coat is forming, structures may be developing to increase the absorption of water. Other structures may help the seed to be moved around once it's mature—think burs that stick to fur and socks, etc. The micropyle, the small opening that the pollen entered remains and a scar forms where the ovary's stalk attached to the ovule. This sometimes serves as a way for water to enter the seed. Other processes beyond seed formation are going on. The ovary itself is becoming a fruit. That's the part of the apple we eat, or peach or plum. In this case the seeds are on the inside. In others, like the strawberry, the seeds are on the outside. Some, like pineapple, are actually many separate flower ovaries that fuse together. In the botanical world anything that contains seeds is a fruit. In agriculture and in grocery stores, many fruits are called vegetables. Vegetables are really things like carrots and potatoes, but call them anything you want, as long as you know what you are talking about.

The seed coat protects the embryo inside. They often have waxes or fats that add a layer of protection and even waterproofing. This is actually very complicated. How do seeds that are so hard—coated or waxed that they won't absorb water actually germinate? Well, nature is a wonderful thing, there is a way. If you are a gardener, you can just slightly nick the seed to improve water absorp-

tion but nature has a way of overcoming this problem. Freezing and warming can crack that coating and so can wetting and drying cycles. In the desert you will often find washes that are lined with plants. This has more than just to do with water. Hard coated seeds undergo a sandpapering effect when carried in a flash flood. This insures that not only the seed coat will be abraded enough to absorb water but that there is water available to get the plant started. Some plants (mistletoe for example) need birds to pass it through their digestive system to germinate. The wild chiltepin pepper is another that is dependent on birds to carry their seeds.

Within each seed is an embryo and endosperm. The embryo is the beginnings of your plant. I'm sure most of you have split open a bean seed and seen those two tiny, tiny leaf-like structures. That's the embryo; the other stuff is the endosperm. It provides a food source for the new plant and for us. The size of the endosperm varies. Think bean (large endosperm) vs radish (small endosperm). Seventy percent of all the food eaten by people comes from seeds. The endosperm contains carbohydrates which may include cellulose, pectin and mucilage. Seeds also contain various fats and oils (think sunflower, canola and peanut oils). They also contain proteins, phytins (minerals, generally a mix of magnesium, potassium, calcium and others). While it sounds like a good deal having minerals, in humans and other animals they can chemically bind to essential dietary nutrients and prevent them from being absorbed by cells. That's a bad thing. In the Western world food processing removes these minerals. In countries where food is less refined they could be robbing animals of essential nutrients.

There are other chemicals in seeds—some good, some bad. Alkaloids like morphine, codeine, strychnine and quinine are some of the bad ones. Theobromine (chocolate) and caffeine are better for you. Sitosterols and stamasterols from soybeans are less understood; they can be converted to the steroid progesterone. Other products that can come from seeds include lubricants and waxes, Sebacic acid is used to make synthetic fibers and lubricants for jet engines. Fats are used to make soap and glycerin is used in explosives. Others are used to made adhesives. You may recall my warning when



I do articles on herbs but here it is again: Just because it's natural does not mean it is good for you!

Science fiction and scientist have talked about using suspended animation for years as a way to send humans into space for long periods of time. Seeds have always been doing it. Each seed is alive, just waiting for the moment when conditions are right and to burst out of the coating and reach for the sky. Water is the key factor. Once it absorbs water the germination begins. It only take 2 to 3 times the weight of the seed in water to begin the process. As the seeds soaks up the water, different chemical processes start. The radicle (the beginning of the root system) starts to grow. Food reserves in the seed are used. Protein manufacturing begins within minutes of the water reaching the interior of the seed. The elongating root pushes the seed to the surface and the first leaves show, except with grasses, corn and other monocots. In their case the seed stays put with the roots emerging first and the leaves coming up from the seed.

The miracle of seeds doesn't stop there. If water doesn't reach them, some seeds can last for centuries. There have been cases of seeds from Egyptian and prehistoric sites that have germinated. While these incidences are rare, seeds can last a very long time if kept in good conditions. To survive for such long periods, seeds have to thoroughly dry and are kept frozen. There are seed banks that have been established for long term seed preservation.

Of course there has to be exceptions to everything. The orchid seed contains no endosperm. It needs the presence of a symbiotic fungus to germinate. They are the finest (very small in size, weight, or thickness:) seeds known and a single flower may produce thousands of seeds. But we'll leave orchid seeds for another story.

So next time you are planting, hold those seeds in your hand and take a moment to marvel at the miracle about to take place.

National Center for Genetic Resources Preservation  
[http://www.ars.usda.gov/main/site\\_main.htm?modecode=54-02-05-00](http://www.ars.usda.gov/main/site_main.htm?modecode=54-02-05-00)

Seed Saving Books  
 "Seeds" by Peter Loewer  
 "Seed to Seed" by Suzanne Ashworth  
 "Garden Seed Inventory" by Seed Savers

sure are organizations that specialize in saving, preserving and making available rare and unusual seeds.

Seed Savers Exchange is a non-profit, member-supported organization that saves and shares the heirloom seeds of our garden heritage, forming a living legacy that can be passed down through generations. SSE members have distributed an estimated 1 million samples of rare garden seeds since SSE founding nearly 35 years ago. Those seeds now are widely used by seed companies, small farmers supplying local and regional markets, chefs and home gardeners and cooks, alike.  
<http://www.seedsavers.org>

Southern Exposure Seed Exchange emphasizes varieties adapted to the Mid-Atlantic region, but serve gardeners throughout the United States and Canada. (I found a lot of seeds that can handle our warmer weather from them) The company started in 1982 as an outgrowth of a love affair with heirloom varieties and seed saving. From its beginning in a small family garden and a kitchen, the seed company now has its own office, germination testing facility, and environmentally controlled seed storage areas. The company serves: (1) as a source for new, high performance varieties, and (2) most importantly, as a preservation tool for collecting and distributing varieties with special qualities: varieties with heritage, flavor, disease resistance, or other qualities of interest to gardeners.  
<http://www.southernexposure.com>



## *Over the back fence: gardeners get advice from neighbors, friends*

*From: May 7th, 2008: American Society for Horticultural Science*

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Where do gardeners turn when they need information about annuals, perennials, shrubs and trees? Staff at University of Minnesota Extension have published results of a survey that concludes that the majority of backyard gardeners get their planting and plant information informally—most often from friends, neighbors and local garden centers.

The survey of 1,000 Minnesota gardeners published in the January–March, 2008, issue of HortTechnology showed that, although respondents viewed the The University of Minnesota and the Minnesota Landscape Arboretum as more credible than garden centers, 78% of respondents indicated that they were most likely to turn to neighbors and friends for gardening advice.

Dr. Mary Hockenberry Meyer, Professor of Horticultural Science and Extension Horticulturist at UM Extension, explained, “We wanted to determine where gardeners got their information and if they think university information is of higher quality than information from garden centers or home centers. We found that university information is viewed as higher quality; however, a large number of people indicated they “did not know” the quality of university information, which surprised us.”

The survey also indicated that the gardener’s age determined the most likely sources for information-seeking. Older gardeners were less likely to use the Internet than younger gardeners. When asked “How do you learn best?”, most respondents said that they had not attended a gardening class in the past year and indicated they learn best from talking with friends. Access to publications containing color photos and illustrations was also highly valued by gardeners who responded to the survey.



# *Yavapai Master Gardeners Verde Valley Garden Tour*

*by Betty Loos Photos by Betty Loos e3 Nora Graf*

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The Verde Valley Garden Tour Committee would like to thank all of the Master Gardeners who contributed to the success of the May 9, 2009 tour. A special "thank you" is extended to the gardeners who offered their gardens for the tour: Larry Anderson, Cyndi Blackberg, Merle and Michele Herrick, Janice Montgomery, Jennifer Young and Cornucopia.

We also want to recognize the volunteers who spent a long day at the gardens: Judy Cowan, Barbara Cregier,



Carol Ekeland, Jay Fleishman, Dee Hunter, Joy Kimmel, Toni Wackerly, and Ron Zymslinski. The Committee also recognizes the assistance given by Robin Weesner at the registration table and Nora Graf at the refreshment table. The wonderful snacks at the refreshment table were pro-



vided by Sally Braun, Lisa Gerber, Cynthia Cartier-Roberts and Robin Weesner. THANK YOU! Bob Burke, Chair, Judy Cowan, John and Beverly Emerson, PeteHeisinger and Betty Loos





## Congratulations!

Awards were presented at the May MGA meeting to the five Master Gardeners reaching emeritus status (that's 10 years of continuous service): Bill Cart, Phil Young, Marilyn Perkins, Beverly Emerson, and Anna Wilson. L to R— Marilyn, Beverly and Anna.



*The following MGs reached 50 hours*

Carol Ekeland (mentor - Cynthia)  
Jane Grams (mentor - Lynn Becker)  
Jeff Thiel (mentor - Pam Bowman)



### *Reminder About Hours Submission*

The fiscal year ends on June 30th. Please ensure all your hours for the fiscal year have been reported by July 5th. In July I will calculate your hours for recognition and to determine "active" status for the fiscal year. If you are already certified, 25 volunteer and 6 continuing education are required to maintain an active or re-certified status. If you need to request a waiver let me know. Thank you. Mary Barnes [mcbarn1@cablone.net](mailto:mcbarn1@cablone.net), 583-0889

### *Request*

I rely on the internet for lots of things these days; travel information and maps, finding phone numbers, news and, of course, gardening information. I search for particular topics or browse general gardening sites. I look at commercial nursery sites and plant societies. I also check out a variety of blogs. I have my favorites but would like to know some of your favorites also. Send me the addresses or names of your favorite sites, and if you don't mind taking a few extra minutes, tell me why you like them.

I'm still a book and magazine lover also, so if you have a favorite in that category I'd be interested. I'd like to pass the information along to everyone. You never know what great things you will find!

Mortimers Nursery has a variety of interesting programs scheduled. They are also doing a radio show on KNOT radio, Saturday, 8am-9am where they answer gardening questions.

June 6 People's Choice Rose Show  
July 11 2nd Annual Daylily Festival  
September 12 4th Annual Autumn Outreach Fair.

# *Master Gardener Programs, Work Shops & Field Trips 2009*



June 17th – Cottonwood “Gardens for Humanity” Diane Dearmore, Presenter Refreshments made with Herbs by MG’ers

July – No Meeting

August 19th Prescott – “Gardening Journaling” Cynthia Cartier-Roberts and “The History & Mystery of Plant Names” Bob Burke

September 16th Cottonwood “Winter Vegetable Gardening with Extension into Spring Veggie Gardening”, Presenter Jay Fleishman

October 10th Master Gardener Picnic Goldwater Lake Prescott

November 18th Cottonwood – “Growing & Cooking with Herbs” Presenter Serve Snacks made with herbs as refreshments)

December – No Meeting

January 2010- Cindy Scott from Underwood Garden Heirloom Seeds “Heirloom Seed, What Are They and How to Gather & Save Seeds”

## *Photoshop Workshop*

October 3rd at the Prescott Co-op Extension Office from 9 until noon and October 24th at the Cottonwood Public Safety Building from 9 until 12 noon. A two-part workshop consisting of two Saturdays (3 hours each) “Overview of Adobe PhotoShop Elements and Features Steve Moody Has Found Most Helpful” Class size limited to 20. Fee: \$20 (Fund Raiser for Yavapai MG) To reserve space please signup at a MG meeting or email Steve Moody at moodyste215@pipeline.com

## *Camp Verde Farmers Market*

Verde Valley Farmers’ Market runs from June 13th until October 3, 2009. The hours are 8:00 am to 12:00 noon. The Market is held at the Ramada next to Ft. Verde State Park, off of Main street on Hollamon, Camp Verde

FROM THE EDITOR: Please send or email articles and announcements to the address below. All articles must be in my hands by the 10th of the month. Short announcements (no more than 2 or 3 lines) will be accepted until the 25th.

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## **Prescott**

**840 Rodeo Dr.**

**Building C**

**Prescott, AZ 86305**

**(928) 445-6590**

**FAX: (928) 445-6593**

## **Cottonwood**

**2657 Village Dr.**

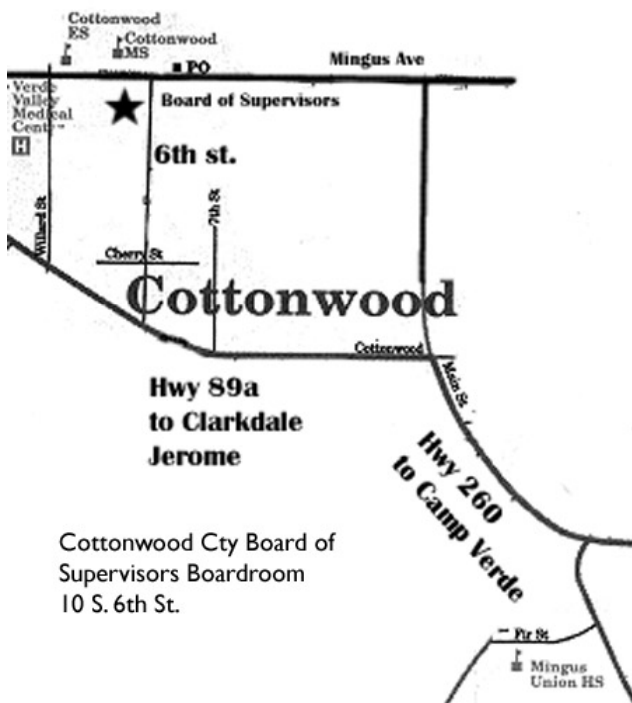
**Cottonwood, AZ 86326**

**(928) 646-9113**

Arizona Cooperative Extension  
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MG NEWSLETTER



MG Association Meeting  
June 17, 6:30pm, Cottonwood  
Speaker:

Diane Dearmore will be speaking at our June meeting in Cottonwood. Her talk will be on Native Plants that Heal and Nourish. As a medicinal herbalist she'll share some simple remedies and samples that she creates from our bioregion. In addition she'll talk a bit about Gardens for Humanity and their work.