



Yavapai Gardens

Master Gardener Newsletter

September 2010

Neem

by Nora Graf



Neem is being touted as an organic pesticide. It comes from a tree and has been used for thousands of years. It has been deemed a “safe” pesticide but I am going to add my usual disclaimer: just because it’s natural doesn’t mean its safe! That said, neem has a lot going for it, if it is used according to the directions.

Neem comes from the tree, *Azadirachta indica*. It is an evergreen related to Mahogany and is native to India, Bangladesh, Sri Lanka, Malaysia and Pakistan. The tree averages 50 to 65 feet. In some areas of the world it is considered an invasive as it can survive on the slightest trickle of water and poor water quality and will spread easily. On the other hand, it can provide a considerable amount of shade in hot sunny climates.

The active ingredient extracted from the tree is called azadirachtin and is present in all parts of the plant. Neem oil is made from the pressed fruits and seeds of the tree.

Besides its affect on insects the tree has been used for a variety of medicinal purposes. It is used in cosmetics, shampoos, as an acne treatment, as a spermicide, it has shown anti-diabetic properties, to relieve fevers, prevent malaria, treat leprosy and is even used in cooking. Early scientific research shows that it is an effective treatment for scabies but there isn’t much research on its other uses and there is little evidence to show it works.

There are side effects. In fact it should not be used on infants or small children and pregnant or nursing mothers. In children it can cause vomiting, diarrhea, drowsiness, blood problems, seizures, comas, brain disorders and death. It can cause a miscarriage and even reduce a woman’s ability to have children and reduce fertility in men. In diabetics it can cause blood sugar to go too low and can cause problems in people with autoimmune disease and organ transplant patients. Neem’s impact on blood sugar can cause problems for people undergoing surgery. It should never be taken within two weeks of surgery. It also interacts with some medications. (Look up neem at <http://www.webmd.com> for more information) Now that I have scared everyone, it still has its uses as an insecticide.

For insect control people used to simply crush the leaves on the skin to protect against biting insects. It seems to work by discouraging insects from feeding and disrupts their hormones so they die before they can molt to the next life stage. Most mosquito/insect repellents contain neem today. In general neem is used against aphids, beet armyworm, cabbage worms, beetles, caterpillars, leaf

MG Association Meeting, Wednesday, Sept. 15 6:30pm Program: “Macro Rain Water Harvesting”

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 Rhizome Sale, Labor day, 9am, Mt Hope in Cottonwood.

Check out the new MG blog. More garden information, events and pictures.

<http://yavapaigardener.blogspot.com>

Table of Contents

Neem . . .	1
Monsoon Madness . . .	2
Seed Propagation . . .	3
The Tennis Lawn . . .	4
Carrots . . .	5
Science News . . .	6
Gardening Tip . . .	6
MG News . . .	7
MG Picnic . . .	7



Monsoon Madness Three

By Angie Mazella

miners, fungus gnats, thrips, nematodes and whitefly. It can also be used as a fungicide and has been found to control black spot, powdery mildew, anthracnose and rust.

Insects need to eat the poison for it to have any effect. This saves many beneficial insects but certainly not all. Of course caterpillars can decimate our plants but they are the precursor to moths and butterflies, which can serve as both pollinator and beauty. Bees eat both nectar and pollen, making them vulnerable to neem as it seems to affect the growth of bee larvae while not affecting adults. This could easily push a struggling hive over the edge. Some research shows that neem can affect some aquatic organisms, although research is ongoing.

The plus side of neem as a pesticide is that it has a short lifespan in the environment. Ultraviolet light, which we have a lot of, degrades neem quickly, along with rainfall. The minus side of this is that you may end up spraying more often. Most products have a low toxicity to mammals so are fairly safe for pets. It also has low toxicity to spiders, earwigs and ants, which are good insect predators. Some plants may exhibit phytotoxicity and any plant that is wilted or stressed should not be treated. Flowering plants seemed to be affected more than others.

As with all yard chemicals:

READ THE LABEL

FOLLOW THE INSTRUCTIONS EXACTLY

MORE ISN'T NECESSARILY BETTER

For more information check out:

Resource Guide for Organic Insect and Disease Control Management (from Cornell University) <http://www.ny-saes.cornell.edu/pp/resourceguide/mfs/08neem.php>

In the May, 2010 issues I talked about Roundup/glyphosate and the use of genetically modified crops. The concern being that genetically modified plants would escape cultivation and start to grow in the wild as a weed. Apparently the genetically modified canola plant (it's where canola oil comes from) has just done that. If you are interested, see the article in the New York Times. Sorry, I asked about reprinting articles from the Times but you've got to pay big bucks so I'm just giving you the link: <http://www.nytimes.com/2010/08/10/science/10canola.html?th&emc=th>

it was published August 9, 2010.

July tenth dawned on the Extension Office parking lot with Robin Weesner and Cathy Michener resting peacefully in their sleeping bags. Their job was to guard the plants and trees for Monsoon Madness three.

Once again the Master Gardener Association pulled off a perfect fundraising sale on a perfect day, with, of course, the traditional afternoon monsoon thunderstorms.

This year's event drew a crowd of 687 people and brought us \$5635 in sales. \$423 of that was from knife and tool sharpening. While this was more than the 558 people who attended last year, it was slightly below 2009's revenue of \$6136. Expenses were \$1233 but \$858 was an investment for the purchase of 4 EZ-up canopies and \$89 for a bullhorn. Watch your ears at the next MGA meeting when Bob Burke takes the podium.

We would like to thank all 61 of the MGA volunteers who made Monsoon Madness three possible, especially the committee.

See all the pictures at:

<http://yavapaigardener.blogspot.com/>



Propagation

by Nora Graf

Our annual yard sale is scheduled in July, probably one of the worst months of the year to be planting and not a great month when it comes to planning for propagating perennials to put in the sale. There is no magic bullet to make things happen faster; it just takes planning and taking into consideration of the plants' physical and chemical needs. This month the article is about seed propagation. Next month I'll tackle cuttings and divisions.

Seeds

Seeds are magic. There is nothing more extraordinary than taking a seed that may be not much bigger than a speck and watching it turn into a luxuriant bouquet of flowers in your spring garden or something like a pecan (which is really a seed) and seeing what it can become. If you have ever driven down Pecan Lane in Camp Verde you will see the majesty that began from a seed. Most of the seeds we use in our garden: beans, carrots, corn, even tomatoes, can easily be tossed in the ground (at the right time of year), given even watering and enough warmth and they will sprout. Pretty simple. Other seeds are more complicated. They may need cycles of cold, they may need physical abrasion of the seed coat, need pre-soaking and some even need fire to germinate.

Tips for germinating seeds and getting seedlings to grow: Start with reading the seed package back for information. Most seed packets have that information. Some seed companies are good at providing information, others less good. Research the plant on line for more specific information, especially if it's something unusual or you know it may be difficult to grow.

Things you need to know:

1. Does the seed need some sort of pretreatment, like scarification? The harder the seed coat the likelier it will need scarification.
2. What temperature does it need to germinate? (That's soil temperature, not air temperature.) Some seeds are pretty finicky and won't sprout unless they have a very specific temperature range. Many seeds have specific needs for germination and then can grow in a broader range of temperatures. Find out the temperature needs once the seed comes up, too. Heat mats are a great way of providing the necessary SOIL temperature.
3. Does the seed need sunlight to germinate? Most seeds like a light covering of soil, some do not. If you bury a seed



that needs light, it won't germinate.

4. Moisture levels: too much and the seed will rot, too little and they will never sprout. Know the limits.
5. Soil: You can dig a hole in your yard and use that soil but it probably isn't the best choice. For seeds you need something light and loose. The soil needs to retain

moisture without staying sopping wet. You can find seed starting mixes sometimes. I've had good luck with them although I tend to add a bit more perlite to some brands. They are often difficult to find so you might have to make your own. You can use a regular potting mix but I add compost and perlite to it. A homemade mix can be made from 1/3 a good quality garden loam 1/3 compost and 1/3 gritty sand. I do not recommend peat moss. There are

some environmental issues with mining peat moss but it also isn't the best choice for our climate. Once peat moss dries out it is very difficult to get it to absorb water again. I'm sure you've seen it when a pot dries out, the soils harden and you can water it for an hour and the water just streams down the sides of the potting mix and out the bottom. Compost works better.

What happens after you get the seed to germinate is important too. All seedlings need light, water and nutrients and the correct temperature in the appropriate amounts. If you are starting seeds early a crucial factor is light. This means you will likely need artificial light to give the young plants a jump-start on the season. Not enough light and the plants will get spindly or even wither away. You need intensity and longevity. Most seedlings need lots of light over a long period of time, 6 hours or more. Even if you see the room as bright enough, it probably isn't. Different types of lights can be used but incandescent are the last choice unless you specifically buy a "grow light". (Wikipedia has a useful comparison of types: http://en.wikipedia.org/wiki/Grow_light)

Once you understand the basics you can push the envelope to force plants to grow faster and bigger. Basically that is what the wholesale greenhouse nurseries do.

Several sources of information are:

http://www.seedsofchange.com/digging/germ_technique.aspx

<http://www.ag.ndsu.edu/pubs/plantsci/landscap/h1257w.htm>

Hudson Seeds provides extra germination information. Check out the website for a primer on seed starting. <http://www.jlHUDSONSEEDS.NET/Germination.htm>

For indoor plants but has some good information on lighting in general: <http://extension.missouri.edu/publications/DisplayPub.aspx?P=G6515>

Books

Growing Desert Plants from Windowsill to Garden by Theodore B. Hodoba. Red Crane Books, 1995 (still available)

Seed to Seed: Seed Saving and Growing Techniques for Vegetable Gardeners
Suzanne Ashworth and Kent Whealy

The Complete Book of Growing Plants from Seeds, Elda Haring, Hawthorne Books, 1967. This book is out of print but contains a lot of good information. I found copies at Amazon.com and EBay.

For the science geek: Seed Germination Theory and Practice, Norman C. Deno. This was self-published and no longer printed but I found his technique for pre-sprouting seeds with gibberellins (a plant hormone, <http://en.wikipedia.org/wiki/Gibberellin>) at <http://www.megagro.com/seed-germination-megagro.htm>

From Seed to Bloom, How to grow over 500 Annuals, Perennials & Herbs, Eileen Powell, Garden Way Publishing, 1995

Making More Plants, Ken Druse, Clarkson Potter, 2000

Seeds, The Definitive Guide to Growing, History & Lore, Peter Loewer, Macmillan, 1995

Propagation Rack

If you need a quick easy rack to set trays of seedlings on, try this one.

It's made from 1/2" rebar and pieces of 2x4 wood. The one in the picture is 4 ft wide and 2 ft deep and dismantles easily. You can stack up to five tiers high (about 4 ft).



Sorry the picture isn't better quality, but hopefully you can figure it out.

The Tennis Lawn



I know everyone has been dying for information on creating a Tennis Ground. After hours of research I found this article in "Webbs' Spring Catalogue for 1888". There's a long article on Making and Renovation of Lawns that precedes it but since we seem quite capable of creating lawns I thought I'd leave that part out. The following is for those that are ready for the next step.

"Making a Lawn Tennis Ground
From: *"The Victorian Garden Catalogue"*

The particulars given above, in reference to forming Lawns generally, are equally applicable to a Lawn Tennis Ground as regards the preparation of the soil; but, if possible, greater attention must be given to draining the site especially if the soil is at all inclined to be heavy. The position should, however, be very carefully selected, as on a light soil, if the drainage be suitable, the turf is soon in good condition after a shower; and play is better on such a Lawn. The correct size of a Lawn Tennis Ground may be generally known: the regulation court for four player is a space 26 yards long, by 12 yards wide, but a considerable margin should be allowed on all sides, the total space being about 35 yards in length, by 20 yards in width. The majority of such grounds, which are now almost as indispensable in the garden as the Lawn itself, are made perfectly level, but some players content that this is not so satisfactory as when the ground is raised to the centre slightly say 4 to 6 inches. Our best Mixture of Prize Lawn Grass Seeds should be used, and liberally, as it is important to procure a dense even turf, which, if frequently rolled and cut with a machine, and watered in hot and dry weather, will ultimately become as soft as velvet. It is advisable to have the Ground surrounded by a light wire fence, which should be constructed as neatly as possible, and painted green, so that it is not too conspicuous. The height at the ends may be 5 to 6 feet, and at the sides 3 feet. If it is desired to form a Tennis Ground on a portion of a Lawn already existing, it is a good plan to raise the turf and spread a layer of fine coal ashes upon the soil before re-laying it. "

I hope that answers everyone's questions about Lawn Tennis Grounds!

Carrots

by Nora Graf



I've had a couple people tell me lately that they haven't been able to grow carrots very well. Since my experience has been that carrots grow very well here, I thought it was time to see if I could help. Homegrown carrots are really wonderful so no one should miss out on them. Generally, carrots are easy to grow, the key seems to be good watering practices and picking the correct varieties.

Soil type isn't important; carrots seem to do well in a wide variety of soils. They certainly prefer a loose silty loam but then again who wouldn't. Since that is not what we normally have in Arizona, soil preparation is key. Add organic matter to heavy soils. For any root crop to grow well they need a loose soil. Heavy clay soils, especially if they dry out, will restrict the growth of any root crop. Loosen the soil, mix in lots of good compost and break down any large soil clods. The soil should have a uniform texture down to about 10 inches. Our heavy soils, along with the compost, provide a nutrient rich soil that carrots will love. With good compost you should not have to apply any fertilizer.

Since you just spent a lot of time and effort creating a loose soil you don't want to compact it by walking on it. Create a walkway around the newly loosened soil to prevent compaction. This is something to consider whenever you grow things. The bed is ready for planting now.

Carrots can be sown in the spring and the fall. I've read that they will be sweeter if there is a substantial difference in day and night temperatures and cooler soils. I've never really experimented with that concept but you might keep it in mind.

Sow the carrot seeds on the soil. Cover the seeds with no more than $\frac{1}{2}$ inch of soil. Carrot seedlings need to be thinned to one every 1 to 2 inches apart, so plant your seeds accordingly or be prepared to thin. Once the seeds are in the ground I gently press down on the soil to make sure there is good seed-to-soil contact. Gently, gently, gently—just a light pressing down does it. Water the bed but don't wash out your seeds. I prefer some sort of drip system that provides steady water without washing the seeds away. Also fine-misting sprinklers will work. Good even moisture is important. Don't let the soil dry out, nor waterlog it. A row cover placed directly on top of the bed will help keep moisture in, allow water through it

and prevent the seeds from being washed away. In our warm temperatures the seeds should germinate quickly. If your soil is too cool carrots will take their time to germinate. They should come up in about 14 days.

The new seedlings are very fine, almost difficult to see at first, but once they get their first true leaves, start to thin them. They will need room to grow so depending on the variety thin to 1 to 2 inches apart. You have to thin them. Not everyone's favorite task but if you don't thin them you will have scrawny misshapen carrots. Consistent watering is very important. If they go through wet and dry cycles carrots will split.

Carrots do have some pests but I have never had any problems with them except for root knot nematodes which I think came from plants I bought from a nursery. Really annoyed about that! I've heard that cutworms might be a problem but never had a problem myself. Keep the plants weeded. If they get ahead of you, carrots won't grow as well.

Carrots to most people are those long thin orange things you see in stores or, these days, bags of stumpy pieces but carrots come in a variety of shapes and colors. Experiment! <http://www.motherearthnews.com/Different-Types-Of-Carrots.aspx>

There are long ones, medium-length ones, miniatures, gold ball shapes, fat ones and thin ones.

Imperator types are long and thin with big shoulders.

Danvers are thick and cylindrical.

Chantenay are conical with broad shoulders and rounded tips and good flavor.

Nantes are straight, cylindrical and have a crisp texture.

Miniatures (or Baby) are round, cylindrical or tapered but less than 5 inches long.

Each of these types have advantages and disadvantages. I've always had good luck with the Danvers Half long and Nantes but if you have a good loose soil any should work. Carrots come in a variety of colors besides orange. I suggest trying something purple or red or white, too. Good luck!

Wild Birds Opt for Conventional Food Over Organic, Study Shows

ScienceDaily (May 20, 2010)

The nutritional benefits of organic food have been called into question by new research which shows wild garden birds prefer conventional seed to that which has been organically-grown.

A three-year study by Newcastle University has found that wild birds are not swayed by the organic label, but instead prefer the more protein-rich, conventional food that will help them to survive the winter.

Published in the *Journal of the Science of Food and Agriculture*, lead researcher Dr Ailsa McKenzie said the findings were likely to be of "considerable interest to the general public in the debate over the relative merits of consuming organic food."

"Our results suggest that the current dogma that organic food is preferred to conventional food may not always be true," explains Dr McKenzie, based in the School of Biology at Newcastle University.

"Protein is an essential nutrient in the diet of all birds and mammals and getting enough of it -- especially in winter -- can be hard.

"We showed that when given free choice, wild birds opt for the conventional food over the organic, and the most likely explanation is its higher protein content.

"This study is only looking at one aspect of the organic food debate -- it does not take into account the long-term health implications of using chemical fertilisers and pesticides, or the often negative environmental impact of conventional farming; for example, other work has shown that pesticides can strongly reduce availability of seeds for birds.

"But it does raise questions about the nutritional benefits of organic food and what consumers are being led to believe."

Global demand for organic produce is increasing by £4 billion annually -- the organic market now accounts for between two and three per cent of all food purchased in Europe and the USA.

One key reason why consumers buy organic food is because they consider it to be better for human and animal health. While this may indeed be the case, these are not necessarily the only factors governing food choice in animals and birds.

To carry out the study the Newcastle team set up feeding stations in more than 30 gardens across the North of England. Organic and non-organic wheat seeds (both

of the same variety) were placed in adjacent bird feeders and then the rate at which the birds ate the different seeds was monitored over a six week period.



Half way through the experiment the feeders were swapped around. The experiment was repeated in a second winter with different wheat samples.

The birds showed a strong preference for the conventional seed, eating significantly more of this than the organic. When the feeder positions were switched, the birds 'learnt' the new position of the conventional seed and continued to select it in preference to the organic.

Analysis of the wheat found the conventionally-grown seeds to have an average 10 per cent higher protein content than the organic seeds. Other differences between the samples (e.g. in mycotoxin levels, grain size, energy content or pesticide residues) could not explain the preferences shown by the birds.

The garden bird work was confirmed by laboratory studies on canaries, also showing a significant preference for conventionally- over organically-grown seeds.

Dr McKenzie explained: "Conventionally-grown crops tend to contain significantly higher levels of protein than those grown organically due to the application of inorganic nitrogen fertilisers in conventional farming systems.

"This makes our findings potentially applicable across many food types and suggests the issues surrounding organic food are not as cut and dried as some might think."

Gardening Tip

Trench Gardening

This tip came from the magazine *Kitchen Gardener* that is unfortunately no longer being published. Even though the writer was from Ontario, Canada this is a tip that can be used here in Arizona.

Carve 8-inch wide trenches in the soil 8-10 inches deep and plant your seeds or plants in the bottom of the trench. Rain and morning dew (not that we have much of that in Arizona in the summer) fill the trench keeping the soil moist. In Arizona the trenches help protect young plants from the effects of our drying winds. Native American gardens did not have our traditional hill and furrow pattern, they planted things in beds that were below grade. This provided a place for rain to collect and not run off.

Congratulations

On 50 hours of service

Bob Busch

mentor: Steve McIntyre

Karen Willey

mentor: Linda Scheerer



Yavapai County Fair – Sept 30th to Oct 3rd

Need volunteers to staff the Extension information table and to assist with Floriculture.

Extension table – contact Eric Downing, ejdown@commspeed.net

Floriculture – contact PJ Ames, 772-7065

MG Cookbook

This project is restarting. A planning committee is being formed and will meet in Sept. Contact Judy Cowan, jaccrna@gmail.com, 634-6272 to join.

Iris Rhizome Sale, Labor Day at Mt. Hope in Cottonwood. 853 S. Main St. 9am. Sponsored by the Verde Area Iris Society.

Master Gardener Picnic, October 16th, 2010

12 noon to 3:00 p.m.

Montezuma Well, McGuireville, AZ.

We are having the picnic catered by Linda Kimberly's (2010 class) husband, a professional caterer/bar-b-quer. He will be purchasing a wide variety of meats that he will be bar-b-queing for us. The MGA will provide paper goods, cutlery, and bottled water. If you would like to bring your own wine or beer, you may do so.

Bring blankets and/or camp chairs, as well.

Please contact Kathy MacCauley as to what you would like to bring to share with the other Master Gardeners...side dish or dessert, We will also be needing condiments, and buns. Also let me know how many will be attending. (RSVP by Oct. 6! I know that most people don't bother with RSVP anymore but we really need to know how many will be attending. Take the time and let Kathy know!)

Take I-17 North to Exit 293. Go east from I-17, and follow the signs and road approximately 2 miles to Montezuma Well.

See you at the picnic!
Kathy MacCauley
prescottgirl@Qwest.net
443-8934

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.

Nora Graf

PO Box 3652

Camp Verde, AZ 86322

mesquite2@hotmail.com

(928) 567-6703

Jeff Schalauska

County Director, Yavapai County Extension Agent,

Agriculture & Natural Resources

email: jschalau@ag.arizona.edu

Prescott

840 Rodeo Dr.

Building C

Prescott, AZ 86305

(928) 445-6590

FAX: (928) 445-6593

Cottonwood

2657 Village Dr.

Cottonwood, AZ 86326

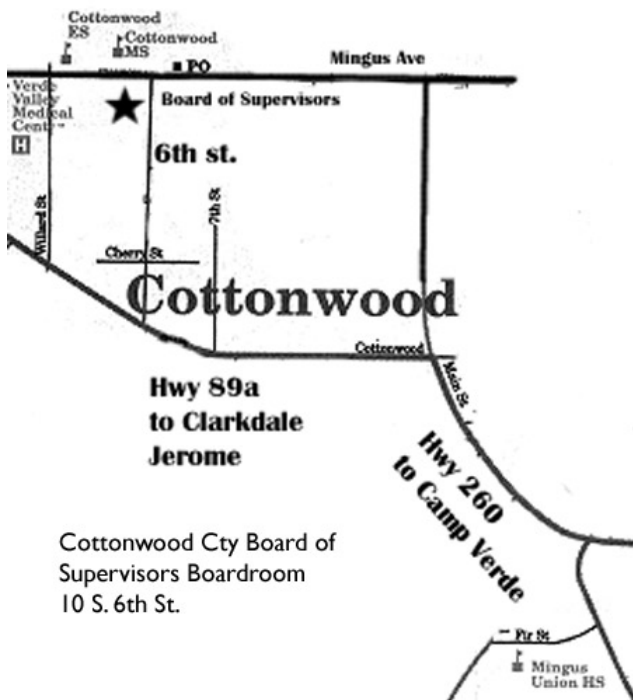
(928) 646-9113

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Arizona Cooperative Extension
Yavapai County
840 Rodeo Dr. Building C
Prescott, AZ 86305



MG NEWSLETTER



Next Meeting

September 15th 6:30 p.m. County Board of Supervisors Building
Program: "Macro Rain Water Harvesting"

Speaker: Doug McMillan 928-713-8354, Master Gardener

Doug McMillan, Master Gardener class of 2001 and a civil engineer working in the water and wastewater fields for over 33 years, has a great interest in helping to resolve the problem of declining groundwater levels in our area and making our water supply more sustainable. Doug has offered to share his ideas on solutions to this problem with other master gardeners at our September 15th meeting in Cottonwood.

The Cottonwood meeting site is changing in the future but for now it is at the County Supervisors building. When a new site is found we will let everyone know.