

Master Gardener News

Amador County

JULY 2006



Your Co-Pres' Speak

Hello! Hello!



Hello!

2006 is half way that happen? is that it did. And summer arrived - just as the early weather was either cold or raining, summer arrived hot!!!

over. How did All I am sure of as of June 21st

We actually received a hard copy Treasurer's Report this month. Jack Lyall has worked with Scott to get this done. If you are interested, there should be an extra copy in the office or contact Jack.

July is a BIG month. Not only do we have a wonderful class on Cooking with Flowers and Herbs coming up, it is also Fair Month. Will everyone please cross their fingers that we will receive some kind of commendation? Bernice and her team work very hard on this and deserve recognition for all their efforts. It looks great by the way.

Some MGs are still in the need of large cottage cheese or yogurt containers and 1 gallon cans. Bring them to the July meeting which holds the promise of being the most exciting speaker we have had this year.

Please look into your calendar and see if you could represent us at the Sutter Creek Farmer's Market on July 15. It is an easy gig. We are going to hand out lists of what Pest Notes we have and spread the word that the

info is the best. Only 2 boxes need to be transported. And you can pick up some really fresh stuff while there.

We also have a nursery clinic on July 1st at the Ridge Nursery and the Master Gardener booth at the Amador County Fair is July the 27th through the 30th.

Marie will be in Montana until mid-July. You can still contact her through her regular e-mail. Be thinking about helping with the late August Fall/Winter Veggie Garden and the Fall Expo on Landscaping.

Marie & Jerry

JULY CALENDAR

7/8 – Saturday – **“Cooking With Flowers and Herbs”** by Jackie Tarchala and Robin Ivanoff. 10 am – noon at the Ag office.

7/15 – Saturday – MG's at Sutter Creek **Farmers Market**, 'Pest Notes', 8am – 11am.

7/18 – Tuesday – **MG Monthly Meeting**, 1pm at the Ag office. Power Point presentation on “Soil Food Web” by Alane O'Rielly Weber. Board meeting at noon.

7/27 – 7/30 – Thurs.-Sun. – **Amador County Fair.**

Secretary's Notes

JUNE 20, 2006

Marie Loretta convened the June meeting at approximately 1:04 PM. She mentioned the wonderful article about Jim Switzer that appeared in the Ledger Dispatch. Jim and other Korean War veterans were invited by the South Korean government to visit as a token of the Korean peoples' appreciation. Marie passed the article around so that everyone would have a chance to see it. She then introduced the speaker of the day, Sandy Hendricks a Design Consultant who works for the Front Yard Nursery in Placerville.

Sandy obtained a degree in Horticulture at Sierra College and has worked for 13 years at the Front Yard Nursery where she does both small and large-scale designs. She stressed that she works by these three iron clad rules: 1) If it ain't broke, don't fix it; 2) Choose your battlegrounds carefully; and 3) Cry once, and cry big. Sandy looks at garden design as a problem solving process and is interested in the long-term results. Her designs include hardscapes such as retaining walls and when choosing plants she believes in the "right plant, right place" philosophy.

Sandy showed photos of a project she completed in 1999 at the home of the Hansons. She wanted to make the view of the home equally attractive from the back and the front. There was an overhang for shade, a hardscape area, and a small lawn that was a high irrigation area and a low or no irrigation area included in this plan.

The next photos Sandy presented were of 1994 Warners home project in El Dorado Hills. In this design Sandy included a four-season display of color, a patio and plantings that worked in the shaded front yard area. Three years after the initial installation the plantings had matured and the design was complete.

The Becker project that was undertaken in 2005 had a unique set of challenges. The

area had a number of grade changes and the original driveway to quote Sandy, "Put the U in Ugly". Sandy had the driveway rerouted and regraded and also changed the pattern of the access roads. Retaining walls were erected, four-foot walks put in place and a dry creek bed was installed to address drainage issues. A wall fountain was installed and deer resistant plantings of Coreopsis, New Zealand Flax, cannas, palms and iris completed the design.

In 1996 Sandy addressed the hillside area of her own home. Using a bobcat the hillside was cut back and a 195 lineal feet base course was installed. Stone retaining walls were erected and plantings installed. She had recent photos to show how the plantings had filled in and completed the project.

Sandy reminded everyone to have patience when completing his or her garden designs. The old adage about plants sleeping the first year, creeping the second year and then leaping the third year still holds true. Don't space plants too closely and think of the long-term results. The real test of a garden design is how it looks five years, ten years and twenty years after the original plantings.

There was a question and answer period where Sandy discussed planting under oak trees, cutting slopes to manage erosion, night lighting for key focal points, and the use of weedblock and mulches to cut down on weed problems.

After a brief refreshment break Marie resumed the meeting at 2:19 PM. She announced that the Nursery Clinics for July and August are staffed. The Fair garden-watering schedule is also full.

Bernice Honeychurch is still looking for people to staff the County Fair on both Saturday and Sunday from 3 to 6 PM. Contact Bernice if you can volunteer. She also spoke about the Sutter Creek Farmer's Market. The June Master Gardener's effort went well but Bernice needs volunteers for

July 15th. The hours are from 7:30 to 11:00 AM and volunteers will need to erect the canopy, bring chairs, the Pest Notes and bookmarks. Please let Bernice know if you can participate in the Public Outreach event.

The Public Education program on Constructing and Planting Window Boxes had a small attendance. Scott and Rita's presentation on Weed Identification and Control was well attended. Scott noted that if you have hard water and use Roundup you need to add ammonium sulfate to the mixture so it will be effective. In a 3-gallon sprayer you need to add 1-2 cups of ammonium sulfate to the Roundup mixture. He added that Roundup works best in the Fall and is less effective in the Spring. Roundup does not need to have a surfactant added to the mixture and you can either do 1% or 2% solution of the product.

The night classes have had poor attendance with the exception of the Ant presentation. As there is so much work put into the presentations there will not be many night classes scheduled in the future.

On July 8 from 10 AM - 12 PM there will be a Cooking with Flowers & Herbs class and on August 26 there will a Fall & Winter Vegetables program from 10 AM - 12 PM. On September 19 Jim Harrington will be teaching a Beginning Power Point class.

The Statewide Master Gardener Conference will be held in San Jose on October 5 and 6. The enrollment fee for both days and overnight accommodations, and meals is \$360. The fee to attend the conference is \$295. The Amador MG Board has voted to allocate \$180 each to defray the cost of attending the conference for four members. The Board will subsidize the 4 people based on their various areas of interest. Those people who would like to attend the conference should submit their names to Scott and the Board makes their decision before the July meeting. The individuals selected to attend the conference will be expected to share what they learned by giving presentations during future meetings.

John Otto, who is responsible for the Food Bank vegetable garden is still in need of cucumber, squash and bean plants. Contact John directly if you have any plants to spare.

Bernice Honeychurch is hoping that there will be many plants in gallon size containers for the Fall Expo on September 23. If you are growing plants you can leave them in 4-inch pots until one month before the Expo. They can then be transplanted into the larger containers. Bernice will be contacting individuals to place orders for specific types of plants. She would like to know what we would have for sale in advance.

Marie announced that Jerry Trottier had recently undergone surgery and was doing well. She adjourned the meeting at 2:51 PM.

EASY TO GROW GARDEN SHOWOFF

This plant will sprout wild, weird, spiky flowers. Attract winged visitors by the dozen.

Bee balm fits easily into an informal garden, where its bright colors and open, spreading shape really blend in with the casual look.

Bee balm (*Monarda* hybrids) flowers come in a range of colors guaranteed to give everyone a choice: Red, white, lavender and shades of pink from salmon to magenta. The flowers aren't fragrant, but the minty, aromatic foliage makes up for that. The scent resembles the smell of Earl Gray tea.

Not only is there a color choice for everyone, but there's a good size for every garden, too. Some bee balms, like "Petite Delight" or "Petite Wonder", are compact, at only 15 to 18 inches high. Others, like mildew-resistant red "Jacob Cline", top out a 3 or 4 feet. Generally, compact cultivars stay in tighter clumps, while the taller ones spread a little farther and a little faster.

It doesn't mind full sun but in our climate welcomes some afternoon shade. It blooms early to mid summer. If you deadhead you can often keep it blooming until fall.

Announcements

A LETTER OF THANKS SENT TO CHRIS TAYLOR

May 15, 2006

Dear Chris and all the Master Gardeners,

On behalf of Plymouth Elementary School and all our students, staff and parents I would like to thank you for sharing your expertise, knowledge and patience with us. You have helped to make our butterfly garden a reality. All the students are very protective about our garden and hardly a lunch recess goes by that students don't come up to me asking if they can work in the garden. With the addition of our shade pavilion we hope to expand the garden to surround that area of campus. Complete with benches, fountains and arbors we have ambitious plans to make this a model garden that other schools as well as our community can admire.

The Master Gardeners have been so generous with their time and help, training a core of nine students who can then help train other students in the care and maintenance of the garden. Every day that they came, the Master Gardeners taught our students something new about the garden. What a wonderful experience for our students. It is my sincere hope that through our school garden and the help from the Master Gardeners we will instill in our students a life long love for gardening and the environment.

Thank you again so much for helping to organize this project and a gracious thank you to all those Master Gardeners who gave of their time and energy to pass on their love for gardening.

Sincerely, Bruce Peccianti
Principal, Plymouth Elementary School

SIGN UP FOR MG CONFERENCE

Last month's newsletter had information about the conference taking place October 5 and 6, "Growing Your Garden of Knowledge". A sign up sheet was passed around at the June meeting. If you wish to attend this 2-day conference and did not sign up at the June meeting, please e-mail Rita Martin **before July 17th**. Scott and the MG Board will choose from this list those that will be given monetary assistance to attend the conference.

VOLUNTEER RECOGNITION CORNER

June 2006 By: Lucy Martin

Scott Oneto and Rita Martin for teaching a class on Weed Identification and IPM

Janice Johnson who taught a class on Publisher to MGs

Jackie Tarchala and Robin Ivanoff for teaching an evening class on Ornamental Grasses

Chris Taylor, Ann Schieding, John Otto, Rita Martin, Bernice Honeychurch, Marie Loretta, Leora Smith, Emily Beals, Dave Henning and Leen Breesch for their work in the Plymouth Elementary garden

Bernice Honeychurch, Penny Smith and Nancy Champlin for working the booth at the Sutter Creek Farmers Market

Marie Loretta and Lucy Martin for working the plant clinic at Ridge Road Garden Center

I apologize if I omitted mentioning anyone who contributed extra time. ***if you make an extra contribution of your time and knowledge to or in behalf of Master Gardeners please let me know so that it can be acknowledged. This article appears monthly.

UC ANR NEWS

Powdery mildew is prevalent on foothill oaks this year.

Many blue oak trees in California foothills might be more accurately described as “silver oaks” this year. From a distance, they shimmer with a silvery halo. On closer inspection the outermost leaves are coated with a white to gray powdery fuzz.

The cause, according to Doug McCreary of the Integrated Hardwood Range Management Program at UC Berkeley, is powdery mildew. Powdery mildew, a group of fungi that causes a white, flour-like growth on the surface of leaves, is common on roses, begonias, grapes and many other ornamental plants and agricultural crops.

“People have called us worried that the affected trees may be showing signs of a relatively new disease called Sudden Oak Death or SOD, but this is clearly not the cause. SOD symptoms are far different, blue oak is not an SOD host and SOD is restricted to coastal forests,” McCreary said.

McCreary assures oak lovers that powdery mildew rarely kills the majestic trees. Even small seedlings that have all of their leaves severely infected usually survive and recover.

“Powdery mildew makes it more difficult for the affected leaves to photosynthesize and produce food, and if it’s severe enough, it can also result in the leaves distorting, curling up, dying and falling to the ground,” McCreary said. “But most affected trees will simply grow a new crop of leaves later in the summer or the following spring. And if weather conditions return to a more normal pattern next year, with little or no rainfall after March, it is unlikely that powdery mildew would continue to be severe or widespread”.

Some people may be inclined to treat affected trees with fungicides. However, these treatments are most effective when the symptoms first appear, which occurred weeks or months ago. It is also generally not recommended to treat trees in wildland

settings. There are too many trees to treat and the potential environmental risks of apply fungicides across a large landscape can outweigh the benefits. Above all, McCreary said, don’t panic and cut down the trees, even if all their leaves fall off.

“The trees are still very much alive,” McCreary said. “Losing their foliage is just the oak’s way of dealing with an unwanted pest. By this time next year they should again be leafed out without that silver covering currently observable”.

The unusually wet March and April is at least partially responsible for the higher-than-normal incidence of powdery mildew in blue oaks, he said. Increased incidence of powdery mildew has also been reported on California black oaks and coast live oaks on the coast.

“Powdery mildew doesn’t need rainfall, but it is favored by warm conditions, high humidity and low light and it loves young, succulent foliage”, McCreary said “Because California was blessed with above average rainfall this past spring, there has been - - and continues to be - - considerably more moisture in the soil. Under these conditions, oak trees will grow a “second flush” of leave, usually in May or early June, that is very susceptible to powdery mildew.”

For more ANR news, visit
<http://news.ucanr.org>

JULY SPEAKER

Our July speaker is certified soil food web advisor Alane O’Rielly Weber. She will talk about composting in regards to helping the average gardener know about the health of their soil. She will have a Power Point presentation on the Soil Food Web.

GARDEN QUOTE OF THE MONTH

‘Gardening has compensations out of all proportion to its goals. It is creation in the pure sense.’ Phyllis McGinley

CONTACT SHEETS – PROBLEMS AND RESOLUTIONS

By: Lucy Martin

May 25 – June 20, 2006

Problem: Small bug all over property, concrete, table, etc... Brought sample in plastic sandwich bag. Holes in butterfly bush – appear to be eaten from center of leaf out to the edge. No sign of worm, bugs, etc.

Resolution: (1). Common mite – common red mite or citrus mite. Advised to spray soap solution – AM. (2). May be earwigs and suggested wet newspaper rolled up and placed near bush. Keep look out for slug/snail trails.

Problem: Seeking weed puller ... that office will loan to citizens.

Resolution: Referred to Carolyn at front desk. There are three types of weed pullers available – all are used for woody plants including trees and shrubs. They can be loaned out for two weeks.

Problem: Client brought a number of tomato plants at class – 2 are Brandywine. They are rangy – not so much foliage as others. They are in pots. Are Brandywine usually this rangy?

Resolution: Called Janice. Brandywine tomato has “potato leaf” structure - long stems with fewer leaves. Called client and explained leaf structure.

Problem: Gold Coast Junipers – wants to replace a part of a row. Took dead plants to nursery. Confirmed too much water. Watering every day when planting last August. Has heavy clay soil and has 3” mulch over on a slight slope - dead plants on lower part.

Resolution: Suggested she wait until September to replace plants – heat – also build a transition zone for roots from pots to clay by mixing amendment with clay rather than filling planting hole with soil amendment. Call back when ready to plant.

Problem: Looking for ground covers that are – gopher resistant – drought tolerant.

Resolution: Sent two lists of drought tolerant ground covers. Sent info on gophers – UC pest note. Sent “personal opinion” suggestions from web.

Problem: Bugs on roses and Meyer lemon. Have ladybugs as control. *Sample in jar. Identify and call her or email.



Resolution: Fuller Rose Beetle – called left message. U.C. Pest Management Guideline – sent out Pest Guideline.

Problem: How often can fertilize rose trees in pots?

Resolution: Good to fertilize twice a season. Once before they bloom in the spring and again before the fall bloom. Some experts believe a third application in June or July. Work it into the soil. Mulching after helps.

Problem: Problems with star thistle. How best to get rid of?

Resolution: Called him and discussed various ways such as goats, sheep/early spring. Spraying is best Jan through April with systemic herbicide clopyralid (Transline) or can do spot treatments with glyphosate (Roundup) in late spring. Also suggested mowing at the early flowering stage or pulling them out.

Problem: Plumbago froze. It's coming back. Fertilized with Miracle Gro – full sun - little #20 – zones 8/9 etc. Can burn new growth and blackened leaves – recovery fast, prune out damaged – good drainage.

Resolution: Loves water. Weed in winter (no leaves). Plastic cover to protect in winter. Don't ever let them completely dry out. Fertilize every 15 days spring – fall ... liquid iron every two weeks. Temperamental!

Problem: Rose buds – outer petals – curled with brown edge.

Resolution: Rain during bud stage.

Problem: Doesn't know what the tree is but these insects have arrived around this time for the last three years. They turn into a beetle and move on to the almond trees later in the season.

Resolution: Elm Leaf Beetle – Pest Note #7403 – Pests of the Landscape Trees and Shrubs, Pg. 85 ... mailed ...

Problem: ... if wisteria has shallow or deep roots.

Resolution: Research and practical experience reveals a wisteria plant will tend to be more likely to develop deep roots. Ref: Peter Valder, Timber Press 1995. ... Chatted with the lady on 5/20 and gave her information ... clicked "Wyman's Gardening Encyclopedia" and N.Y. Royal Hort Society Dictionary of Gardening. No information on root depth. Web: Univ of Ohio – Deep fertile soil 18-24" deep. Root-prune 18" deep 4ft from trunk around entire vine. No info on root depth.

Problem: Some of these are flying into baseboard of garage – please ID (see specimen).

Resolution: Wasp ... megachilid bee in the genus *Osmia* (Metallic Leafcutter). They use preexisting holes to build their nests like leaf cutter bees do. ... Visit wide range of flowers and nest in abandoned little burrows in logs or in other holes. Unable to determine that they burrow the holes but rather seek out existing holes. Control: spray and clear – fill holes if possible.

Problem: Holes– liquid amber.

Resolution: ... has been identified as Sap Sucker. Problem solved.

Problem: 2 camellia bushes planted last Sept – leaves turning yellow and dying. Planted two more in Feb and they're doing fine.

Questions: 1. Where planted – sun/shade – 2. Drainage watering protocol 3. fertilizer (called left msg to call back)

Resolution: They dug them out and put in containers. The planting site soil didn't drain. They are recovering beautifully. Reminded her to fertilize after bloom. Camellias like moderate deep watering.

PLANTS WANTED FOR FALL EXPO

One gallon and quart-size plants are most favored at our plant sales. Popular at our spring expo were:

bare root agapanthas and edible strawberries, house plants, ornamental grasses, Bear's breech (*acanthus*), pelargoniums, gaillardia, day lilies and garlic chives.

Plants featured in our 2007 calendar also wanted are: Oregon Grape, Western redbud, ceanothus, Pacific dogwood, Hartweg's iris, penstemon, sage, yarrow, wild strawberry, California rose, California Fuschia, Purple needle grass and Black oak.



If you have any of these plants in your yard and have extra plants to share please pot them up for the plant sale. All plants are welcome of course, but Bernice is especially looking for these plants so she will have another successful plant sale at the expo.

The Dose (and the Surfactant) Makes the Poison

Glyphosate formulations and amphibians

Adapted from Cal-IPC Spring 2006

Two recent studies have addressed the toxicity of glyphosate formulations to amphibians. In August 2005, Dr. Rick Relyea of the University of Pittsburgh published a study, entitled “The lethal impact of Roundup on aquatic and terrestrial amphibians,” that has stirred discussion in the restoration community regarding herbicide use. He found that glyphosate plus the surfactant POEA caused mortality to tadpoles and juvenile frogs. Also in 2005, Joel Trumbo of the California Department of Fish and Game found few toxic effects to frogs from glyphosate using R-11 surfactant. We present summaries of each article and Joel Trumbo’s analysis of their differences.

The Two Studies

Herbicides are often applied in formulations that include a surfactant, which helps the herbicide penetrate the surface of the target plant. Surfactants can have more significant non-target impacts than the active herbicidal ingredient on other organisms, especially in aquatic habitats. Roundup® and Rodeo® are two brand names for glyphosate formulations. Rodeo has no surfactant and is designed and approved for use near open water. Roundup uses a surfactant and is not approved for aquatic use. Dr. Relyea used field and laboratory experiments to test the effects of a commercial formulation of Roundup on leopard frogs (*Rana pipiens*), American toads (*Bufo americanus*), and gray tree frogs (*Hyla versicolor*) (Relyea 2005). In his first experiment, glyphosate with POEA (polyethoxylated tallowmine) surfactant was applied as direct overspray to ponds containing the three species of amphibian tadpoles, using a concentration typically used on upland areas. (This simulated conditions that would occur with negligent overspray or inadvertent treatment of flooded depressions.) In his second experiment, juvenile amphibians (those that had undergone metamorphosis out of the tadpole stage) were placed in laboratory containers and subjected to the same direct overspray conditions. In the ponds, 98% of the tadpoles died within three weeks of the overspray, while 78% of the juvenile amphibians in the laboratory died in one day. Relyea stated that previous studies have shown that POEA is the primary cause of death to amphibians subjected to Glyphosate plus POEA and he believed that it was the cause of toxicity in his study as well, although his methods could not separate the effects of glyphosate from the surfactant. Joel Trumbo applied Rodeo (the formulation of glyphosate approved by the EPA for aquatic environments) with R-11 surfactant directly to the surface of a pond to simulate atypically high concentrations in water, with the goal of determining the concentration that would be lethal to 50% of northern leopard frog (*Rana pipiens*) tadpoles within 96 hours (referred to by toxicologists as the 96-hour LC50 value) (Trumbo 2005). Leopard frogs were used because they are closely related to the state protected California red-legged frog, *Rana aurora draytonii*. His study failed to produce dead tadpoles in toxicity tests that contained high levels of both glyphosate and the R-11 surfactant. The hazard of the Rodeo/R-11 mixture to aquatic life was largely determined by the concentration of R-11 because it is the more toxic compound in the tank mix. Although glyphosate can be toxic at levels in excess of 500 mg/L, R-11 can be toxic at approximately 1-6 mg/L.

Analysis

by Joel Trumbo, California Department of Fish and Game

My impression of Dr. Relyea’s article was that it was well-written and accurate. Given what we already know about the aquatic toxicity of the surfactant in formulated Roundup products, Relyea’s results were not at all surprising. It’s true that Roundup (glyphosate plus surfactant) is at least moderately toxic to aquatic organisms, including fish and tadpoles. That’s why the product is illegal to use in water. One of the most confusing things about this topic is the tendency for people to be incautious as to what chemical they’re referring to. It is easy for people who read Relyea’s article to interpret the terms “glyphosate”, “Roundup”, and “formulated glyphosate products” interchangeably. Relyea points out that the surfactant in the formulated glyphosate product Roundup causes the toxicity. (That’s pretty common knowledge for those of us in this field). Glyphosate itself has been proven to be practically non-toxic for fish and tadpoles. Still, people talk about “how toxic Glyphosate is to frogs”. That’s a pretty significant error. It’s the surfactant in the Roundup product, not the

glyphosate, that is toxic. Relyea makes a couple of important points: 1) the surfactant in the formulation, not the active ingredient glyphosate, is toxic to tadpoles, and 2) the high levels of amphibian mortality in his results were the product of “direct overspray” to water. I believe he means an accidental (and illegal) overspray to water that is of the same magnitude as the intended application to the terrestrial target. In other words, the applicator didn’t try to avoid the water; the water surface got the same dose as the land. I think this type of overspray is not outside of the realm of the real world. It does happen, but there can be a significant difference between this type of “direct overspray” and the lowered residues that might be the product of drift. The difference between the two scenarios (drift vs. direct overspray) becomes all the more critical depending on the application method. Drift from an aircraft is likely to be of a greater magnitude than drift from a low-pressure backpack spray delivered several inches above the terrestrial weed target. Remember, the dose makes the poison. My study used the aquatically-approved glyphosate product, Rodeo, but I did add the surfactant R-11 to the tank mix. Adding the surfactant in to the tank mix pretty much gets you back to a higher hazard situation used by Relyea for tadpoles because R-11 is moderately toxic to aquatic fauna. In that way, our studies are similar. Relyea’s use of Roundup and my use of Rodeo + R-11 present a moderately toxic scenario to tadpoles. The question then becomes one of exposure. In my study, we used high rates of both Rodeo and R-11 in impounded water with no aquatic vegetation. That means any non-target fish or tadpoles would be exposed to high chemical levels. It wasn’t a typical scenario, but not outside the realm of the possible or probable. The main difference between the two studies is likely the type and amount of surfactant. Relyea’s Roundup formulation contained the surfactant POEA; my experiment used R-11, which contains the surfactant NPE (nonphenyl polyethoxates). My study failed to produce dead tadpoles in toxicity tests that contained high levels of both glyphosate and the R-11 surfactant. My application method was the same as Relyea’s “direct overspray”. Since both surfactants have similar tadpole toxicities (around 1-6 ppm), you have to assume that the difference between his study and mine would then be the concentrations of the surfactants that ended up in the water. Relyea mentions glyphosate concentrations in his study, but does not list POEA concentrations. It would be interesting to know how much POEA was in the water. My NPE concentrations peaked on Day 0 at around 1ppm but were down to 0.02 ppm by Day 4 (96 hrs., the exposure time needed to produce 1-6 ppm toxicity.) In spite of the fact that I applied herbicide and added R-11 surfactant to the water surface at high levels, the NPE concentration in the pond still wasn’t high enough to produce tadpole mortality. Again, the dose makes the poison. It’s not a question of whether or not the NPE is toxic to tadpoles. If you get enough in the water, you will kill them. In the case of my study, direct spray of high use rates still didn’t produce dead tadpoles. In summary, low volume/low pressure/low drift applications of glyphosate and surfactant to terrestrial sites near frog habitat should not be expected to produce tadpole mortality. This is especially true if you use a lower aquatic risk surfactant. There are several on the market. I don’t want to exaggerate the aquatic toxicity risk posed by R-11 (I feel it can be used safely near water), but there are lower aquatic toxicity surfactants on the market. Further, ground-based applications produce very little drift (backpack sprayers produce almost none). Finally, you should give some thought to whether tadpoles are actually present in the water when you are making the applications. Most glyphosate applications to established perennial weeds should be done at or near flowering (late summer or early fall). I think that most frogs should be in the adult stage by then. If you go with the commonly held thought that the tadpoles are the most sensitive life stage, you can increase your margin of safety by spraying when there are no tadpoles.

For More Information

Relyea, R. A. 2005. The lethal impact of Roundup on terrestrial and aquatic amphibians.

Ecological Applications. 15(4):1118-1124.

Trumbo, J. 2005. An assessment of the hazard of a mixture of the herbicide Rodeo® and the non-ionic surfactant R-11® to aquatic invertebrates and larval amphibians. *California Fish and Game*. 91(1):38-46

US Environmental Protection Agency Pesticide Information. www.epa.gov/pesticides

California Department of Pesticide Regulation. www.cdpr.ca.gov

Rick Relyea’s webpage: www.pitt.edu/~relyea

Contact the author at jtrumbo@ospr.dfg.ca.gov

July Gardening Calendar

PLANT SEED:

Start plants indoors for fall growing (beets, broccoli, bush beans, cabbage, carrots, cauliflower, peas, green onions, spinach, turnips). Above 2000', wait until later in the month.

If you are above 3000', you should have your fall/winter veggie's planted by August 1. If you plant in an open cold frame, you can attach the lid when cold evenings arrive.

Evaluate turf grass and if re-seeding is necessary, July and August are good months to use glyphosate as an herbicide to kill the existing weedy turf. (To control Bermuda grass, skip mowing a couple of weeks before spraying.) Later, strip off dead turf with de-thatching machine. The surface soil will be loose enough to apply seed without the expense of rototilling. September is the best month to re-seed.

SET OUT PLANTS:

Below 2000' - Summer vegetables and annuals: green beans, cukes, squash, marigolds, cosmos, zinnias.

Take cuttings of perennials: dianthus, geraniums, scabiosa, verbena and Shasta daisies, dip in rooting hormone and plant in ½ perlite + ½ peat moss.

FERTILIZE:

Liquid fertilize all annuals and vegetables.

Feed cymbidiums with diluted liquid fertilizer.

Feed roses and houseplants.

Feed Citrus and avocados.

PEST AND DISEASE CONTROL:

Wait until the fruit has dropped off wild blackberries before applying chemical controls such as glyphosate.

If poison oak still has bright green foliage, it is not too late to spray.

Treating mountain misery is best when the plant is in flower, but reasonable results come from July spraying.

Control tomato hornworms-look for chewed leaves and black droppings-pick and destroy the fat, green worms. If they are small, spray with **Bt**.

Control budworms-look for small holes in buds and black droppings on leaves-geraniums, nicotiana, penstemons and petunias may look healthy but produce no flowers, budworms are eating the buds before they open. Spray every 7 to 10 days with BT.

To discourage mites, clean top and bottom of leaves with the hose.

GARDEN MAINTENANCE:

Deadhead fading flowers for continued bloom. Trim off faded flowers of Crape Myrtle for repeat fall bloom.

Cut back plants that are setting seed and prune for a second time.

Lift and divide bearded iris.

Cut back dried foliage of spring blooming bulbs.

Pinch mums back one more time for fuller plants and better bloom.

Mulch to conserve moisture, cool roots and discourage weeds.

Check grapes for powdery mildew.

Prune berry canes after harvest. Cut old growth to the ground then fertilize. Loosely twine or tie up new growth.

NOTE: This is a good time for home canning, freezing and drying. Check out the Farmer's Market each Saturday morning in Sutter Creek and Wednesday afternoon in Pine Grove for new and interesting varieties to grow next year.



Master Gardener Volunteers Events Calendar July 2006

[next month](#)
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sunday

monday

tuesday

wednesday

thursday

friday

saturday

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2	3	4 -Phone Clinic	5 -Phone Clinic C Taylor	6 -Phone Clinic J E Otto	7 -Phone Clinic C Rosson D Rosson	8 -Cooking with Flowers and Herbs 10-noon	
9	10	11 -Phone Clinic	12 -Phone Clinic L Smith	13 -Phone Clinic	14 -Phone Clinic L Martin	15 -Pest Notes at Sutter Creek Farmer's Market 7:30 - 11:00	
16	17	18 -Board Meeting 12:00 - 1:00 -Master Gardener Monthly Meeting 1:00-3:00 -Phone Clinic J Lyall	19 -Phone Clinic S Collins	20 -Phone Clinic B Honeychurch	21 -Phone Clinic	22	
23	24	25 -Phone Clinic J Harrington S Harrington	26 -Phone Clinic	27 -Amador County Fair (contact Bernice for signup) -Phone Clinic P Stalder	28 -Amador County Fair (contact Bernice for signup) -Phone Clinic	29 -Amador County Fair (contact Bernice for signup)	
30 -Amador County Fair (contact Bernice for signup)	31	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> <p>Sign up for activities online. This calendar can be viewed on the Amador County Master Gardener website. Access it at http://ucce.ucdavis.edu/mg/</p> </div>					