

Kentucky Fruit Facts

April 2005 (4/05)

Fruit Facts can be found on the web at: <http://www.ca.uky.edu/fruitfacts/>

John Strang, Extension Fruit Specialist, Editor
Karen Shahan, Administrative Assistant

Upcoming Meetings

Apr. 12 Spring Orchard Tour, Boyd Orchards, 1390 Pinckard Pike, Versailles, KY 40383 phone 859-873-1853. Questions? Contact John Strang 859-257-5685. See directions, registration information and program below.

Apr. 13 Ag Immigration and Labor Law Web Seminar, Kentucky State University, Frankfort, KY. Cooperative Extension Bldg., Room 238 A-B (Cooperative Extension is in Bldg. #3, visitor parking is in the adjacent lots.) Seminar will cover Immigration 101 for the Farm and Ag-business Employer, Hiring A Foreign National for Temporary Work, Green Card Workers, The I-9 Form and Employer Compliance. 9:45-11:30 a.m. For more details go to: <http://www.Agcareers.com/workshop/Immigration/Immigration.htm> Please call 502-597-5905 if you plan to attend.

Apr. 18 Hands on Fruit Tree Pruning, Sun Ray Orchard at 505 Alpar Lane, Shepherdsville, KY. 6:00 p.m. Contact Darold Akridge 502-543-2257.



Apr. 23 Kentucky Nut Growers' Association Spring Meeting, Elizabethtown Extension office, Elizabethtown. Contact: Kirk Pomper 502-597-5942, e-mail: kpomper@dcr.net

Apr. 25 Fruit Tree Grafting and Budding, Sun Ray Orchard at 505 Alpar Lane, Shepherdsville, KY. 6:00 p.m. Contact Darold Akridge 502-543-2257.

Apr. 28 Vegetable Pest Management Training & Up-Date, U.K. Robinson Station, Jackson, KY. 8:30 a.m. - 3:00 p.m. Pesticide application training credit for categories 1, 10 & 12; 1 hr. specific and 5 hr. general credit. Contact: Terry Jones 606-666-2438, Ext 234.

May 2 Blackberry and Blueberry Production, Whitesburg, (Letcher county), 6:00 p.m. Contact Shad Baker 606-633-2362.

May 13 Mississippi Valley Orchard Tour with Illinois and Missouri Growers, Jacksons Orchard, Bowling Green. Contact John Strang 859-257-5685.

Jun. 15 Woody Cut Stem Field Day, U.K. Horticultural Research Farm, Lexington. Contact: Amy Fulcher 859-257-1273, e-mail: afulcher@uky.edu

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Jun. 16 Eden Shale Field Day and Celebration, U.K. Eden Shale Farm, Owenton. Contact Kim Strohmeier 502-484-5703.

Jun. 18 Kentucky Vineyard Society Summer Meeting, Talon Winery, Lexington. Contact John Pitcock, Talon Winery Winemaker 502-229-0334.

Jul. 13-15 American Society for Enology & Viticulture Eastern Section 30th Annual Technical Meeting and Symposium, Cutting-edge Cultivars: Highlighting Pinot gris, Traminette, Norton, and New Cold Hardy Cultivars, St. Louis, MO. For information see web site at www.nysaes.comell.edu/fst/asev/

Jul. 28 U.K. Research and Education Center All Commodity Field Day, Princeton

Sept. 19 Harvesting the Fruits of Your Labor, (A walk through the orchard to observe different varieties and different rootstocks). Sun Ray Orchard, Shepherdsville, KY. 6:00 p.m. Contact Darold Ackridge 502-543-2257.

Jan. 10-11 2006 Kentucky Fruit and Vegetable Grower Conference and Trade Show, Holiday Inn North, Lexington, KY. Contact: John Strang 859-257-5685, e-mail: jstrang@uky.edu

Midwest Small Fruit & Grape Spray Guide Corrections

We found another one! Look on page 63 under, Herbicide Recommendations for Vineyards and Small Fruit Plantings, Bearing Brambles. The rate for Sinbar 80WP (terbacil 0.8 lb ai/lb) is listed as 1-22 lb per acre... It should be 1-2 lb. per acre.

Spring Orchard Tour

Tuesday April 12

Boyd Orchards

(Formerly Kaenzig Brothers Orchard)

1390 Pinckard Pike, Versailles, KY 40383

Terry and Susie Boyd, Owners

Phone: 859-873-1853

Terry and Susie purchased Kaenzig Brothers Orchard and moved to Kentucky in 2004. Terry's previous orchard background involved growing approximately 200 acres of

apples and peaches in Illinois, primarily for the wholesale market. Over the years Claude and Charlie Kaenzig had developed their operation into a very good retail market, but Terry and Susie have taken this concept to a whole new level in entertainment fruit farming. Come see their state of the art marketing and dining facility and welcome them to Kentucky.

Directions From Bluegrass Parkway (from Harrodsburg, Elizabethtown): Take the first Versailles exit - Hwy. 33. At the top of the ramp, turn right. Take 169, Pinckard Pike left off of Hwy. 33 and watch for Boyd Orchards on the left

Directions From Lexington: Take U.S. 60 (Versailles Rd) from Lexington. Turn left onto Shannon Run Road (Hwy 1967) at the light at the castle. Stay on Shannon Run Road until it "T's" at Pinckard Pike (169). Turn right and follow signs to Boyd Orchards on the right.

From Louisville/Frankfort: Take I64 to the Frankfort/Versailles exit, Hwy 60. Turn right and go approximately 10 miles to Versailles. Take 60 Business exit through town. Stay on that road as it becomes Main St. which eventually becomes Hwy. 33. At 169, exit left and follow the signs to Boyd Orchards on the left

Program: (Eastern Time)

10:00 a.m.	Registration
10:10	Grower Roundtable Discussion
11:00	Spring Fruit Diseases - John Hartman
11:30	Insect Management - John Strang
Noon	Lunch (Apx. \$6.00) for those that Preregister
1:00 p.m.	Tour of Boyd Orchards - Terry Boyd
1:30	What Weeds? - Joe Masabni
2:00	Preparation for Fruit Thinning - John Strang

Preregister for lunch by Friday April 8. Call Mary Ann Kelley at 270-365-7541 Ext. 216 between 8:00 a.m. and 4:30 p.m. CST Weekdays. Give her a count for the Spring Orchard Tour at Boyd Orchards.

All UK Cooperative Extension programs are open to everyone.

Dr. Tom Cottrell Accepts U.K. Enologist Extension Specialist Position

We are pleased to announce that Dr. Tom Cottrell has accepted the Enologist (winemaking) Extension Specialist position at U.K. and will begin work July 1, 2005. The position is funded for a period of two years by a grant from the Kentucky Agricultural Development Board through the Kentucky Grape and Wine Council (KGWC). The position will provide leadership for a statewide extension and research program in support of the growing Kentucky grape and wine industry. Program focuses will include winery operator and grower education, dealing primarily with the development of wine making skills, County Extension Agent training, and conducting applied research related to wine making and cultivar evaluation.

Tom, a native of Ithaca, NY started working in the wine industry in 1970 in the Napa Valley founding Cuvaison. Later he co-founded Pine Ridge Winery, and started several others as a consultant. In 1982 he moved to Geneva, NY and became Cornell's first Associate Professor of Enology and became acquainted with winemaking in the East. Subsequently, he was the manager/winemaker for Chalk Hill Winery in Sonoma County, CA and for Sakonnet Vineyards in Rhode Island. He is also a frequent writer for Vineyard and Winery Management magazine. Tom is currently a highly respected winery consultant. For additional information, visit his website, Small Winery Action Team (SWAT) at <http://www.winedoc.com>

Lichens Infesting Tree Trunks and Branches

by John Hartman

Homeowners sometimes ask: Is that profuse, greenish, crusty stuff growing on my tree a disease? Is that crusty, green or gray material that covers the bark of tree trunks and branches going to harm the tree? What are those leathery things covering the tree bark?

The short answers are that the grayish-green crusty things are lichens and that lichens are not tree parasites.

Lichens often appear as a perennial green or gray coating on the trunks and branches of trees. They are actually two organisms in one, being composed of a fungal body harboring green or blue-green algae, which live together in complete harmony. In the symbiotic relationship, the algae, through photosynthesis, supply carbohydrate food to the fungus and, in turn, receive protection and trapped water and mineral elements from the fungus. In this relationship, the algae and the fungus are not distinguishable except with a microscope, and the lichen persists longer than the alga or the fungus would separately.

Lichens do not parasitize trees, but merely use the bark as a medium on which to grow. In fact, lichens can be seen growing on rocks, weathered lumber, or on dead branches fallen from the tree. Some may consider lichens unsightly, but they are not generally injurious except that, when extensive, they may interfere with the gaseous exchange of the parts they cover. Because of their extreme sensitivity to sulfur dioxide air pollution, lichens seldom appear on trees in industrial cities... They rarely develop on rapidly growing trees, because new bark is constantly being formed before the lichens have an opportunity to grow over much of the surface. Because of this, lichens on certain species may indicate poor tree growth. We have noticed that in some plantings, those trees that are more vigorous have fewer lichens than those of the same age nearby in a state of decline. Few studies have been conducted to verify any correlation between lichen growth and tree vigor.

Lichens on trees take on various forms. Some are closely appressed to the bark surface and are described as crustose. Lichens which are foliose have leaf-like lobes which extend out from the bark surface. Others have hair-like or strap-like forms and are referred to as fruticose lichens. Lichen color may include forms that are green, blue-green, yellow-green, brown, gray, or even red. Increases in lichens are sometimes associated with moist climate - perhaps the relatively moist weather of the past two summers accounts for increases in lichen questions. Lichens proliferate when more light

is provided, which could explain why they are more frequently seen on dead, leafless branches.

As a rule, lichens can be eradicated by spraying the infested parts with Bordeaux mixture or any ready-made copper spray. Read the fungicide label to be sure that this use is permitted for the product chosen. However, suppression of lichens with chemical sprays should not be expected to improve tree health.

Pesticide Amounts for Small Gallonage

Joseph Masabni, UKREC, Princeton, KY.

In some instances, growers may wish to apply a small volume of pesticides such as with a backpack or a handheld sprayer. Growers with smaller acreage, homeowners, or growers who wish to apply a pesticide to a few infested trees are prime examples.

To do this properly, growers need to know the amount of pesticide to use that is equivalent to the large scale application of 100 - 400 gal/acre. With liquid pesticides, such conversions are easy, since we can readily reduce any volume to its smaller 'oz' equivalents. With dry chemicals, wettable powders or dry flowables, it is not as easy to reduce a 1 lb amount further than its 1 oz fraction without loss of accuracy.

Currently, growers refer to a conversion table found in "Midwest Commercial Small Fruit and Grape Spray Guide" in order to determine how much pesticide to use in 1, 3, and 5 gal when the labeled rates range from 1-5 lb/100 gal. The dry formulations portion is presented below. As an example, the equivalent amount of pesticide to 1 lb/100 gal is 2 teaspoons/gallon. This is an approximation we take for granted.

One problem is evident with this table. Dry formulations have different densities. A high-density pesticide occupies a smaller volume, and vice versa. Therefore, one measurement cannot apply to all densities. There are inherent errors when using such a table. In most cases, we could be over or under applying pesticides. This is evidently wasteful of pesticides and their cost and potentially

harmful to the environment when over applying, and ineffective in disease or insect control when under applying. Therefore, the table needs to be improved.

In order to determine whether this table is accurate, we compared the actual number of tsp per lb to the theoretical number of tsp per lb. The actual number of tsp per lb is calculated by dividing 454.5 by the weight of 1 tsp. The theoretical number of tsp per lb is 200 based on the 1 lb/100 gal = 2 tsp/gal, then 200 tsp/100 gal. Of the 22 fungicides tested, only 3 were within 5% of the theoretical 200 tsp / lb. Values ranged from 129-303, confirming that one value doesn't fit all dry pesticide formulations.

How much are we really applying?

All tables assume that 1 lb per 100 gal = 2tsp per 1 gal. Since 1 lb = 454.5 g, then 454.5 g per 100 gal = 2 tsp per 1 gal. Finally, 4.54 g per 1 gal = 2 tsp per 1 gal or 4.54 g = 2 tsp.

Let's take the example of Topsin-M. Based on the actual weight of 1 tsp of Topsin-M = 1.3 g (2 tsp = 2.60 g).

How many tsp are we really applying?

2tsp <-> 4.54 g (assumption)

xtsp <-> 2.60 g (actual wt)

O R

$$x = 2.60 \text{ (g)} \times 2 \text{ (tsp)} / 4.54 \text{ (g)} = 1.15 \text{ tsp}$$

If we calculate the actual number of tsp applied based on its actual tsp weight, we realize that we are actually applying the equivalent of 1.15 tsp when we actually measured 2 tsp. The 1.15 tsp is equal to 0.57 lb/100 gal instead of the recommended rate of 1 lb/100 gal. That's 43% less than the recommended rate.

What's the correct number of tsp of Topsin-M to use?

If 2tsp = 2.60 g AND we need 1 lb/100 gal = 454 g/100 gal OR 4.54 g/gal, therefore:

2.60 g <-> 2 tsp

$$4.54 \text{ g} <-> \text{xtsp} \quad \text{OR} \quad x = 4.54 \text{ (g)} \times 2 \text{ (tsp)} / 2.60 \text{ (g)} = 3.49 \text{ tsp}$$

Therefore, in order to apply the equivalent of 1 lb/100 gal of Topsin-M, we need 3.49 tsp and not 2 tsp.

Weighing 1 tsp is not as easy as it sounds. To be consistently reliable and accurate, one method should be used when

Table 1. Approximate Dilutions for Small Volumes of Spray Mixes Equivalent rates for different quantities of water

Formulation	100 gallons	5 gallons	3 gallons	1 gallon
Wettable Powder,	5 pounds	15 tablespoons	9 tablespoons	3 tablespoons
Dry Flowable, etc.	4 pounds	13 tablespoons	8 tablespoons	8 tablespoons
	3 pounds	10 tablespoons	6 tablespoons	2 tablespoons
	2 pounds	8 tablespoons	4 tablespoons	4 teaspoons
	1 pound	3 tablespoons	6 teaspoons	2 teaspoons
	1/2 pound	5 tablespoons	1 teaspoon	1 teaspoon

weighing dry pesticides. We tested various methods, scoop and shake excess off, scoop and level excess off, and pack then level excess off. We determined that the best accuracy and consistency were obtained using the 'pack and level excess off' for wettable powders, and 'scoop and shake excess off' for dry flowables.

The following tables are the new tables based on the calculations mentioned earlier. For each pesticide, the labeled rate is listed and the actual weight of 1 tsp. Based on the actual weight of 1 tsp and the low labeled rate, each table lists the amounts needed for 1, 3, or 5 gal. Values were rounded up or down to the nearest 0.25 unit.

Herbicides

	Labeled Rate	Weight of	Rate	GPA	5 GAL	3 GAL	1 GAL
		1 tsp (g)			TBSP	TSP	TSP
Axiom 68DF	8-20 oz	2.66	8 oz	20	7	13	4.25
Chateau 51WG	6-12 oz	2.45	6 oz	20	5.75	10.5	3.5
Dacthal 75WP	8-12 lb	2.49	8 lb	20	122	219	73
Define 60DF	12-20 oz	2.81	12 oz	20	10	18.25	6
Devrinol 50DF	8 lb	3.32	8 lb	20	91.25	164.25	54.75
Direx 80DF	3/4-6 lb	2.8	0.75 lb	20	10	18.25	6
Gallery 75DF	2/3-1 1/3 lb	2.21	2/3 lb	20	11.25	20	6.75
Karmex 80DF	2-4 lb	3.23	2 lb	20	23.5	42	14
Kerb 50WP	2-8 lb	2.17	2 lb	20	35	63	21
Matrix 25WG	1-1.5 oz	3.19	1 oz	20	0.75	1.25	0.5
Maverick 75WG	2/3 oz	2.96	0.66 oz	20	0.5	1	0.25
Option 35WG	1.5 oz	2.75	1.5 oz	20	1.25	2.25	0.75
Permit 75DF	2/3-1 1/3 lb	3.3	2/3 lb	20	7.5	13.5	4.5
Pursuit 70WDG	1.08-2.16 oz	3.03	1.08 oz	20	0.75	1.5	0.5
Sandea 75DF	0.5 - 1 oz	3.8	0.5 oz	20	0.25	0.5	0.25
Sinbar 80WP	0.5-4 lb	2.46	0.5 lb	20	7.75	13.75	4.5
Solicam 80DF	2.5-10 lb	3.6	2.5 lb	20	26.25	47.25	15.75
Spartan 75DF	1/4-3/8 lb	3.49	0.25 lb	20	2.75	4.75	1.5

Miticides / Insecticides

	Labeled Rate	Weight of 1 tsp (g)	Rate	5 GAL	3 GAL	1 GAL
				TBSP	TSP	TSP
Ambush 25WP	3.2-12.8 oz	2.02	3.2 oz	0.75	1.5	0.5
Diazinon 50W	2 lb	1.58	2 lb	9.5	17.25	5.75
Guthion 50WP	1.5-2 lb	1.5	1.5 lb	7.5	13.5	4.5
Imidan 70WP	1.3-2.1 lb	2.43	1.3 lb	4	7.25	2.5
Kelthane 50	2.5 lb	1.63	2.5 lb	11.5	21	7
Kocide 2000	1.5-6 lb	3.52	1.5 lb	3.25	5.75	2
Lorsban 50W	2-3 lb	1.95	2 lb	7.75	14	4.5
Savey 50DF	3-6 oz	1.47	3 oz	1	1.75	0.5
Sevin 50W	2.5-20 lb	2.14	2.5 lb	7	12.75	4.25
Thiodan 50WP	2 lb	2.65	2 lb	5.75	10.25	3.5

Fungicides

	Labeled Rate	Weight of 1 tsp (g)	Rate	5 GAL	3 GAL	1 GAL
				TBSP	TSP	TSP
Bayleton 50DF	2-6 oz	2.75	2 oz	0.25	0.5	0.25
Benlate 50WP	1-1.5 lb	1.87	1 lb	4	7.25	2.5
Cabrio 20DF	8-16 oz	2.99	8 oz	1.25	2.25	0.75
Captan 50WP Carbamate	3-4 lb	3.63	3 lb	6.25	11.25	3.75
76WDG	3 lb	2.19	3 lb	10.25	18.5	6.25
C-O-C-S	20 lb	3.3	20 lb	46	83	27.5
Dipel	0.25-2 lb	2.35	0.25 lb	0.75	1.5	0.5
Dithane 75DF	1.5-6 lb	2.91	1.5 lb	4	7	2.25
Dursban 50WP	1-4 lb	1.74	1 lb	4.25	8	2.5
Manzate 75DF	1.5-4 lb	2.97	1.5 lb	3.75	7	2.5
Nova 40W	3-5 oz	2.15	3 oz	0.75	1.25	0.5
Orthene 75S	0.3-1.3 lb	2.4	0.3 lb	1	1.75	0.5
Penncozeb 75DF	1.5-3 lb	2.84	1.5 lb	4	7.25	2.5
Pristine	6-10.5 oz	2.54	6 oz	1	2	0.75
Rovral 50WP	1-2 lb	1.5	1 lb	5	9	3
Sovran 50WG	3.2-6.4 oz	2.82	3.2 oz	0.5	1	0.25
Topsin M 70WP	1-2 lb	1.3	1 lb	5.75	10.5	3.5

Weed Management in Kentucky Vineyards

by Terry Jones and Joe Masabni,
Extension Horticulturists

Weeds can be a serious problem in perennial crops such as grapes. It is recommended that growers begin their weed control strategies long before the grapes are even planted. Begin one or two years before planting to reduce perennial weeds like dock, brambles, and Johnsongrass. Growers may use herbicides alone or in combination with cultivation to decrease problem perennials. Roundup-Ready corn would be an excellent crop to plant ahead of grapes. Growers must, however, be careful not to use herbicides with long term residuals that could damage the future grape planting.

Once perennials have been reduced, weeds such as annual broadleaves and grasses growing in the grape row are much easier to control. It is recommended that growers identify the most common weeds present so that effective preemergence herbicides can be selected. While some vineyards in other areas use mechanical cultivation or mowing to control weeds in the row, this can be difficult under Kentucky's weather and terrain conditions. We recommend that growers maintain a 3 to 4 foot weed free strip under vines to promote good growth. Usually permanent sod is established between the rows.

The following are general recommendations:

1. Before planting, apply a broad spectrum systemic herbicide to create a bare strip (if the ground was prepared in the fall and a cover crop planted). If the ground was tilled prior to planting this application is not needed. After planting apply a preemergent herbicide to control most annual weeds. Spot treat weedy areas around any grape vines by hand.
2. DO NOT use/allow systemic herbicides or certain preemergent herbicides to touch green leaves, shoots or the trunks of newly planted grapevines. Some preemergent herbicides can not be used for three years after planting, so be sure to read the labels before you apply!
3. On coarse or sandy soils with less than 2% organic matter never use Sinbar, Simazine or Karmex.
4. Be sure the herbicides used are labeled for grapes.

5. Remember that some herbicides are labeled for non-bearing grapes only, while others are labeled for bearing grapes only.

Growers can use gramoxone as part of their tank mix in early spring to burn back perennial weeds like dandelion and kill most germinated annual weeds. Gramoxone can also be used for sucker control on mature established vines. (this applies for Roundup, not gramoxone). Growers must be very careful with Roundup. Apply Roundup as a directed spray, preferably with a shielded boom and stay at least 1 ft from the trunk or any suckers present. Roundup can also be applied with a small hand held roller or wipe. Walk the grape rows prior to application and remove (prune, tie up) any suckers shoots or canes from the area that needs treatment. Do not apply Roundup within 14 days of harvest and do not apply it in the fall when it may be taken up by the grapevines and translocated to the grape root system. Do not allow Roundup spray mist or spray drift to touch the trunk, suckers, pruning wounds, or any green parts of the vine.

Weed Control Recommendations for grapes are listed in the Midwest Commercial Small Fruit and Grape Spray Guide "ID-94" available online at <http://www.hort.purdue.edu/hort/ext/sfg/>.

Example 1 for non-bearing grapes or during the planting year Oryzalin (Surflan) 4AS at 2-4 qts

Or

Prowl 3.3EC at 2-4 qts per broadcast acre

Surflan and/or Prowl can be applied before planting once the soil has settled and no cracks are visible. Growers usually apply the lower rates and use Gramoxone to kill any weed seedlings that may have germinated after planting. If a grass problem develops, Fusilade 2EC at 12-32 oz. or Poast 1.5EC at 1.5-2.5pt. with crop oil concentrate or nonionic surfactant will help control them. Fusilade and Poast are grass-specific herbicides and cause little to no injury to the grapevines.

Applying herbicides to grapes in the fall may be beneficial because it is easier to see what you are doing and there aren't new grape leaves to come into contact with systemic herbicides. A half rate application in the fall and again in the spring sometimes provides better control than a single full rate application.

In established vineyards (3 yr or older), some growers like to apply preemergent tank mixes of a grass and broadleaf herbicide.

Example:

(Oryzalin) Surflan 4AS at 2 to 6 qts
(Plus)

(Simazine) Princep 80WP at 2.5 to 5 lbs.
Caliber 90 at 2.2 to 4.5 lbs.
Princep 4L at 2 to 4 qts

There are three herbicides (Gramoxone Extra, Roundup and Poast) that may be applied postemergence to weeds in bearing grapes.

The safest of these is Poast because of its selective activity on actively growing grasses. Accidentally spraying a grapevine with Poast will not cause major damage. Do not, however apply Poast within 50 days prior to harvest.

Paying careful attention to detail (identifying potential weed problems, proper sprayer calibration, and timely application of the correct herbicides) will result in improved grapevine growth and increased yield.

John G. Strang,
Extension Fruit & Vegetable Specialist