UK COOPERATIVE EXTENSION SERVICE
University of Kentucky – College of Agriculture

Lexington KY 40546

Kentucky Fruit Facts

March 2004 (3-04)

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

John Strang, Editor, Karen Shahan, Staff Assistant

Upcoming Meetings

Mar. 18 Grape Spraying and Pruning, Jessamine City County Park, Nicholasville, KY. 6:30 p.m. Contact Robert Amburgey 859/885-4811.

Mar. 19 Purchase Area Blackberry Workshop. McCracken County Extension Office 1:00.p.m. Contact Kathy Keeney 270/554-9520.

Mar. 22 Commercial Cole Crop and Small Fruit Production, Bath County Library, Owingsville, KY. 7:00 p.m. Contact Gary Hamilton 606/674-6121.

Mar. 23 Mammoth Cave Area Blackberry Workshop, Sherman Marklin's farm, 1432 Harris School Rd., Franklin, KY. 1:00.p.m. Contact Joe Masabni 270/365-7541 ext. 247 or Sherman Marklin 270/586-7513.

Mar. 25 Fruit Tree Grafting Workshop , 1:00 p.m. CST and **Commercial Bell Pepper, Cabbage, Pumpkin, and Tomato Production** , 6:00 p.m. CST. Russell County Contact Raymond Thompson 270/866-4477.

Mar. 25 Vegetable Production, Cultivars and Pest Management, Lewis County. Contact Richard Bowling. 606/796-2732

Inside This Issue:

Mar. 26 Pennyrile and Green River Blackberry Workshop, Crittenden County Extension Offices and Yoder's farm, 346 Rooster Lane, Marion, KY. 1:00 p.m. Contact Tom Moore 270/965-5236.

Mar. 30 Farmers Market Vegetable Cultivars and Production Practices for Rockastle County, Mt. Vernon, KY. Contact Tom Mills 606/256-2403.

Apr. 8 Blueberry Production, Whitesburg, KY. Letcher County Contact Shad Baker 606/633-2362.

Apr. 13 Commercial Apple IPM Meeting, Mathis Orchard, Coleman (Walter) Mathis owner, Mayfield, KY. Contact Joe Masabni 270/365-7541 ext. 247 or Coleman Mathis 270/247-5466.

Apr. 19 Cantaloupe, Watermelon and Pumpkin Production. Fleming County Contact Mike Jackson 606/845-4641.

Apr. 24 Kentucky Nut Growers' Association Spring Meeting, Elizabethtown Extension Office, Elizabethtown, KY. Contact Hugh Ligon 270/827-9044.

Apr. 28 Ag Expo, Henderson, KY. Contact Mike Keen 270/826-8387.

Jun. 8 Apple IPM Program, Jackson's Orchard, Bill Jackson owner, Bowling Green, KY. Contact John Strang 859/257-5685 or Bill Jackson 270/781-5303.

Jun. 19 Kentucky Vineyard Society Summer Meeting and Grape IPM Program. Site to be announced. Contact Len Olson 502/ 540-5650.

Jul. 14-16 American Society for Enology & Viticulture, Eastern Section Meeting, **2004 Annual Technical Meeting and Symposium,** Grapes, Wine and Environment - How soils, cultural practices and warm climates affect wine quality, Hotel Roanoke & Convention Center, Roanoke, VA. See web site for further details: www.nysaes.cornell.edu/fst/asev/ or contact Tony Wolf: vitis@vt.edu

Sept. 11 The KSU/Pawpaw Foundation Pawpaw Workshop, Kentucky State University Research Farm, Frankfort, KY. Contact Kirk Pomper phone:502-597-5942 or e-mail: kpomper@dcr.net

Oct. 15-16 Kentucky Vineyard Society Fall Meeting and Amateur Wine Competition, Shepherdsville, KY. Contact Len Olson 502/540-5650.

Jan. 3-4, 2005 Kentucky Fruit and Vegetable Conference and Trade Show, Holiday Inn North, Lexington, KY.

Charles Beyer, 1938-2004

Charles Beyer passed away Monday January 19, 2004 at the age of 66. Charles specialized in growing peaches and was particularly proud of the Early Loring cultivar, which his father discovered. This patented cultivar was later sold by Stark Brothers Nursery.

The family farm was settled in the 1800's in McCracken county and was later sold to become Paducah's Industrial Park, West. In 1997 Charles purchased a 200 acre farm of which, 30 acres were ideal for growing peaches, north of the communities of Birdsville and Bayou in Livingston county. Here, Charles planted and cared for some 3,000 peach trees. Recently Kent Beyer, Charles's son worked with his father to continue the orchard tradition.

Charles received a B.S. degree in agriculture from the University of Kentucky, a M.S degree in education from Murray State University and taught school early in his career. Charles was an active member of the KSHS, and was on the board of directors. He was a member of the County Extension Council, and the Pennyrile Extension Council. He served as chair of the Phase 1 Agricultural Development Council and actively worked with the Livingston County Cooperative Extension Service office.

He is survived by his wife, Judith Hodges Beyer, one daughter, Shauna Beyer Ruzich of Chicago; two sons, Linn Beyer of Kevil and Kent Beyer of Paducah; two brothers, Farrell Beyer of Paducah and Louis Beyer of Benton; four grandchildren; several nieces and nephews.

Commercial Apple IPM Meeting -April 13

Mathis Orchard, Walter (Coleman) Mathis, Owner
1013 Spence Chapel Rd.
Mayfield, KY 270/247-5466

Directions: Proceed West on the Purchase Parkway and take exit 27. Turn right on Rt .131 to the North. Go 1/4 mile to the first crossroad and turn right on Spence Chapel Rd. Drive straight for 1 1/4 mile to Spence Chapel Church and Mathis Orchard. Continue straight in to the orchard.

Program: All times CST

10:00 a.m. Registration
10:15 Apple Grower Round Table Discussion - Coleman Mathis moderator
11:00 Managing Apple Scab and Fire Blight - John Hartman
11:30 Managing Early Season Apple Insects and Codling Moth Organic Phosphate Insecticide Resistance - Ric Bessin
12:00 Lunch
Lunch will be available at cost (in the $6.00 range) for those that preregister.

Preregister for lunch by April 9. Call Mary Ann Kelley at 270/365-7541 Ext. 216 between 8:00 a.m. and 4:30 p.m. CST weekdays and give her a count for the Apple IPM meeting at the Mathis Orchard.

1:00 p.m. Tour of Mathis Orchard - Coleman Mathis
1:30 Early Season Weed Control with Chateau
2:00 Beekeeping and Orchard Pollination - Robin Mountain
2:30 Fruit Thinning - John Strang

Kentucky Department of Agriculture Advertising and Market Development Cost-Shares

The Kentucky Department of Agriculture (KDA) is continuing two programs that provide cost-share dollars at a fifty percent (50%) cash match.

The first program is a cost-share match of up to $2,000 for advertising expenses including radio, television, billboard, and print advertising that promote Kentucky-grown horticulture products. Approval or denial notices of proposals will be provided by KDA in advance of expenditures. All advertising must include the “Kentucky Fresh” or the “Kentucky Proud” logo, which ever is specified by the KDA.

The second program provides travel cost assistance to producers of Kentucky horticulture products for new market development and alliance building efforts. Applicants can receive a cost-share match of up top $2,500 for travel related expenses including private auto milage @ .32 per mile, car rental fees and fuel, public transportation including airfare on commercial carriers, overnight lodging at cost and meals at a standard rate of $36.00 per day per person.

Both cost-shares will be awarded on a competitive basis with priority given to producer associations, co-operatives, and projects that impact multiple farms. These programs are also available for individual farms. There submission deadlines are the same for both programs.

Further information on these programs and applications may be obtained from the KDA web page at www.kyagr.com or by calling the KDA at 502/564-4983

Cost Share Funding Opportunities Through County Extension Offices with Agricultural Diversification Program Funds

The main goal of this program is to improve net farm income through the development and expansion of new agricultural products and through the development of new ways of working with existing agricultural commodities.

Eligible investment areas include: commercial horticulture, herbs, sweet sorghum, ornamentals, greenhouse conversion, aquaculture, silvaculture, equine, direct-to-consumer value-added livestock sales, dairy.

Participants in this program may receive up to $5,000 in cost share assistance per farm, based upon the 50% cost share requirement. A revolving loan program is also an option available to counties.

The following counties have committed a portion of their County Agricultural Development Funds to the diversification of agricultural enterprises.

Total committed: $7,832,350
Total counties: 80
Updated: February 20, 2004

Adair	Carlisle	Fayette
Allen	Carroll	Fleming
Anderson	Carter	Franklin
Ballard	Casey	Gallatin
Bath	Clark	Garrard
Boone	Clay	Grant
Bourbon	Clinton	Graves
Bracken	Cumberland	Green
Breckinridge	Daviess	Hancock
Calloway	Edmonson	Hardin
Campbell	Eliott	Harrison

(continued on next page)

Proposal Submission Deadline	For Advertising Between	Reimbursement Receipts Due
Apr 15, 2004 -- 4:30 p.m.	May 1st - Aug. 31st, 2004	Sept. 14, 2004
Aug. 15, 2004 -- 4:30 p.m.	Sept. 1 - Dec. 31st, 2004	Jan. 14, 2004

Hart	Mason	Pendleton
Henderson	McCracken	Pulaski
Henry	McCreary	Robertson
Hickman	McLean	Rowan
Jackson	Menifee	Russell
Jessamine	Mercer	Scott
Knox	Metcalfe	Shelby
Larue	Monroe	Simpson
Lawrence	Montgomery	Spencer
Lewis	Morgan	Taylor
Logan	Nelson	Trimble
Madison	Nicholas	Warren
Magoffin	Oldham	Washington
Marion	Owen	Wayne
Marshall	Owsley	Webster
		Wolfe
		Woodford

Please contact your county's Cooperative Extension Office for program availablity, as some programs may have already expended their funds.

Cultural Practices for Grape Disease Control

by John Hartman, Extension Plant Pathologist

Grapes are grown for eating fresh or for wine-making in small vineyards throughout Kentucky. Grape diseases have a major impact on the success of grape culture. Kentucky grape growers face several major diseases caused by fungi, and all are favored by our wet, humid spring and summer weather. For successful disease management, growers need to know which diseases are most likely to occur on their varieties and to prepare to prevent those diseases. High yields of highquality fruits depend on integrating cultural and chemical practices for disease management.

Black rot. Two hundred years ago, black rot disease was first recorded on grapes on this continent - in Kentucky. The fungal pathogen infects and rots fruits, generating hard, black, shriveled mummies which produce crop losses ranging from 5% to 80%. Leaves, petioles, pedicels, and shoots can also become infected. One year ago, black rot was very damaging to many vineyards due to wet spring and summer weather. Preventing early spring infections is very, very important.

Downy mildew. Downy mildew appears as leaf yellowing and browning with white fungal sporulation on the leaf underside. Poor leaf health causes reduced fruit sugar accumulation. Infected berries discolor, soften, and drop from the bunch.

Powdery mildew. The powdery mildew fungus infects all green tissues of the grapevine. The fungus produces mycelium and spores on the surface of the host tissue, giving it a gray or whitish appearance. Fruit yields are reduced by the leaf infections and by direct infection of the fruits giving them poor color and a blotchy appearance.

Cane and leaf spot and anthracnose. Phomopsis cane and leaf spot disease appears mainly on shoots and leaves causing spotting and blighting. Anthracnose, another fungal disease, also attacks shoots, stems and fruit. Anthracnose was especially serious last season during a particularly cool and rainy spring.

Bunch rot. Botrytis bunch rot and blight can spread rapidly through compact grape clusters, causing direct losses in yield. The fungus also attacks the cluster at bloom causing blooms or developing fruit to dry out, fall off, or decay.

There are several cultural practices which will aid in grape disease control.

— Choose cultivars that resist diseases.
— Plant grapes in sites with good air circulation and sun exposure. Avoid sites where the soil is consistently wet.
— Use training systems that allow good air movement through the canopy.
— Begin new plantings with disease-free, virus indexed planting stock from a reputable nursery.
— When pruning dormant vines, remove and destroy diseased and dead wood
— Destroy any fruit mummies left on the vines or on the ground.
— Cut new infections out of shoots as they appear.
— It is helpful to remove leaves from around grape clusters before bunch closing to promote good sunlight penetration and ventilation.
— Avoid excessive nitrogen fertilization.
— Control weeds in and around the planting.
— Remove wild grapes and abandoned grapevines adjacent to the vineyard.

Marketing for Health: Human Wellness Compounds in Fruits and Vegetables

By Penelope Perkins-Veazie, USDA-ARS, South Central Agricultural Laboratory, Lane, OK 74555 pperkins-usda@lane-ag.org

One of the best things to happen to agriculture in recent years has been the new interest in consuming fruits and vegetables as a source of human wellness compounds. First recognized as important back in the 1950s as a source of many vitamins, every 20-year study released since then has implicated fruits and vegetables as being an increasingly important source of health. However, it hasn't been until the last 10 years that the specific components of produce have been characterized. In one way, it's been unfortunate that the importance of such stand-bys like vitamin C in fruits have been somewhat overlooked in search of more glamorous compounds like lycopene and procyanidins, but in another way, the overall importance of fruits and vegetables, and especially fresh ones, in the human diet has never been more publicized.

So, what is in fruits and vegetables and why are they so great? Well, besides the well known vitamins and minerals we've all grown up hearing about, there are new compounds that appear to reduce such chronic diseases as cancer and heart disease. These substances were discounted for many years because they had no nutrient value, but numerous epidemiological studies now show that they may account for many of the puzzling clusters that appear in the data. Epidemiological studies are those where large amounts of data, often from up to 10,000 people at a time, are studied for trends; these studies developed as computers became more sophisticated and capable of handling large amounts of data and complex software became available to do the statistics. These studies showed that specific populations had increased or decreased risks of diseases, such as prostate cancer of heart attacks. Lifestyle attributes were examined relative to these studies, and in particular diet was analyzed. At first, scientists found that the general intake of fruits and vegetables was higher in people who appeared resistant to diseases. Then, as scientists became more familiar with the make up of these fruits and vegetables, new data emerged. Of the many fruits and vegetables studied, four have received the most publicity. These are broccoli, onions, blueberries, and tomatoes. A list of fruits and vegetables, their vitamins and minerals, and the phytochemicals or human wellness compounds discovered, and their effect on human health are given in Tables 1 and 2.

So, what are the most important compounds? First are the plant pigments. These have great marketing potential as they are easy to see. In fact, the Five a Day Program has adopted this strategy in their eating by color campaign to encourage consumption of more fruits and vegetables. The blue of blueberries, the purple of plums, the green of peppers, and the red of tomatoes are visually appealing and promise consumers a juicy and tasty experience. These compounds include anthocyanins, chlorophyll, and lycopene. Second are the 'invisible' colors, the flavonols such as quercetin in onions, or lutein in corn. The third category is the sulfer-type compounds, which often impart an odor to cut or cooked vegetables such as broccoli, cabbage, onions, and garlic.

How do you take advantage of all this information and use it to market your produce? First consult web sites, especially those of commodity boards. Several commodity boards have helped fund medical studies with their fruit or vegetable, and post these results, especially once published, in easy to understand language. Once scientific results have been published in peer-reviewed journals, the information can be used by individuals to apply to FDA and FTC for substantiated labeling claims. This is a gray area, as several government agencies regulate claims, especially when used as marketing tools. The Federal Trade Commission (FTC) looks for language that is not excessive or erroneous. For instance, a claim that eggs are cholesterol-free will raise eyebrows. In contrast, the Federal Drug Administration (FDA) regulates language that makes medical claims. If the same eggs are marketed as lowering cholesterol and preventing heart disease, then the FDA will investigate to see if this claim has been verified scientifically.

One other group regulates language used in labels by commodity boards. The Agriculture Marketing Service (AMS) regulates language used by boards and labels developed by these boards for use by their producers. This language must be approved annually and can be challenged by individuals or other commodity groups at any time.

Sources of information:

American Dietetic Association [http://www.eatright.org/]

California Dried Plum Board [http://www.californiadriedplums.org]

California Tomato Commission [www.tomato.org]

Hyson, D. 2002. The health benefits of fruits and vegetables. A scientific overview for health professionals. Produce for Better Health Foundation, Wilmington, DE, 20p.

National Center for Biotechnology Information, including the National Library of medicine and National Institutes of Health. Http://www.ncbi.nlm.nih.gov/ Http://www.ncbi.nlm.nih.gov/pubmed/ (Pub-Med)

National Center for Complementary and Alternative Medicine
Credible alternative health information from the National Institutes of Health (NIH). [http://nccam.nih.gov/health/]

National Watermelon Promotion Board [www.watermelon.org]

North American Blueberry Council [http://www.blueberry.org/]

Nutrient Data Laboratory Food Composition Data - USDA http://www.nal.usda.gov/fnic/foodcomp/

Oregon Raspberry and Blackberry Commission [http://www.oregon-berries.com/]

Produce for Better Health Foundation. 1999. Dietary guidelines: the case for fruits and vegetables first. Produce for Better Health Foundation, Wilmington, DE (Website: http://www.5aday.org).

Table 1. Constituents of fruits and vegetables that have a positive impact on human health and their sources (adapted from Produce for Better Health Foundation 1999; USDA, 2000; Hyson, 2002), to be published in USDA Handbook 66 (Kader, A., Perkins-Veazie, P., Lester, G, 2004).

Constituent	Sources	Human-wellness affects
Vitamin C (ascorbic acid)	broccoli, cabbage, cantaloupe, citrus fruit, guava, kiwifruit, leafy greens, pepper, pineapple, potato, strawberry, tomato, watermelon	healthy immune-system, cardio vascular disease
Vitamin A (carotenoids)	dark-green vegetables (such as collards, spinach, and turnip greens), orange vegetables (such as carrots, pumpkin, and sweet potato), orange-flesh fruits (such as apricot, cantaloupe, mango, nectarine, orange, papaya, peach,	night blindness, chronic fatigue, psoriasis, heart disease, stroke, cataracts
Vitamin E (tocopherols)	nuts (such as almonds, cashew nuts, filberts, macadamias, pecans, pistachios, peanuts, hazelnuts and walnuts), corn, dry beans, lentils and chickpeas	heart-disease, LDL-oxidation, immune-system, diabetes, cancer
Fiber	most fresh fruits and vegetables, nuts, cooked dry beans and peas	diabetes, heart disease
Folate (folicin or folic acid)	dark-green leafy vegetables (such as spinach, mustard greens, butterhead lettuce, broccoli, brussels sprouts, and okra), legumes (cooked dry beans, lentils, chickpeas and green peas), asparagus	birth defects, cancer, heart disease, nervous system
Calcium	cooked vegetables (such as beans, greens, okra and tomatoes) peas, papaya, raisins, orange, almonds, snap beans, pumpkin, cauliflower, rutabaga	osteoporosis muscular/skeletal, teeth, blood pressure
Magnesium	spinach, lentils, okra, potato, banana, nuts, corn, cashews	Osteoporosis, nervous system, teeth, immune system
Potassium	baked potato or sweet potato, banana & plantain, cooked dry beans, cooked greens, dried fruits (such as apricots and prunes), winter (orange) squash, and cantaloupe	Hypertension (blood pressure), stroke, arteriosclerosis

Table 2. Non-nutritive plant constituents shown to be beneficial to human health.

Constituent	Compound	Sources	Human-wellness effects
Phenolic Compounds			
Proanthocyanins	tannins	apple, grape, cranberry	cancer
Anthocyanidins	cyanidin, malvidin, delphinidin, pelargonidin, peonidin, petunidin	red, blue, and purple fruits (such as apple, blackberry, blueberry, cranberry, grape, nectarine, peach, plum & prune, pomegranate, raspberry, and strawberry)	Heart disease, cancer initiation, diabetes, cataracts, blood pressure, allergies
Flavan-3-ols	epicatechin, epigallocatechin catechin, gallocatechin	apples, apricots, blackberries, plums, raspberries, strawberries	Platelet aggregation, cancer
Flavanones	hesperetin, naringenin, eriodictyol	citrus (oranges, grapefruit, lemons, limes, tangerine)	cancer
Flavones	Luteolin, apigenin	Celeriac, celery, peppers, rutabaga, spinach, parsley, artichoke, guava, pepper	Cancer, allergies, heart disease
Flavonols	quercetin, kaempferol, myricetin, rutin	onions, snap beans, broccoli, cranberry, kale, peppers, lettuce	Heart disease, cancer initiation, capillary protectant
Phenolic acids	Caffeic acid, chlorogenic acid, coumaric acid, ellagic acid	blackberry, raspberry, strawberry	Cancer, cholesterol
Carotenoids			
Lycopene		tomato, watermelon, papaya, Brazillian guava, Autumn olive, red grapefruit	Cancer, heart disease, male infertility
a-carotene		sweet potatoes, apricots, pumpkin, cantaloupe, green beans, lima beans, broccoli, brussel sprouts, cabbage, kale, kiwi, lettuce, peas, spinach, prunes, peaches, mango, papaya, squash and carrots	Tumor growth
b-carotene		cantaloupes, carrots, apricots, broccoli, leafy greens (lettuce, swiss chard), persimmon, red pepper, spinach, sweet potato	Cancer
xanthophylls	Lutein, zeaxanthin, beta-cryptoxanthin	sweet corn, spinach, corn, okra, cantaloupe, summer squash, turnip greens	Macular degeneration
monoterpenes	limonene	citrus (grapefruit, tangerine)	Cancer
Sulfur compounds	glucosinolates, isothiocyanates, indoles, allicin, diallyl disulphide	broccoli, brussel sprouts, mustard greens, horseradish, garlic, onions, chives, leeks	Cancer, cholesterol, blood pressure, diabetes

Receiving The Fruit Facts Newsletter Electronically on the Internet

Fruit Facts is available electronically on the web in the pdf format. To get notification of the monthly Fruit Facts posting automatically and approximately two weeks earlier than it would normally be received via mail, you can subscribe to the University of Kentucky Listserve.

To subscribe, send an e-mail message:

Addressed to: listserv@lsv.uky.edu
Subject: Fruit Facts
Message: subscribe ky-fruitfacts, followed by a blank line

You will receive two responses, the first notifying you that your request has been received and to wait for the second message. The second message describes how to confirm your request. You must confirm your request using one of the three ways shown (web access, e-mail reply or new e-mail message). Upon successfully confirming, you should get a welcome message.

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