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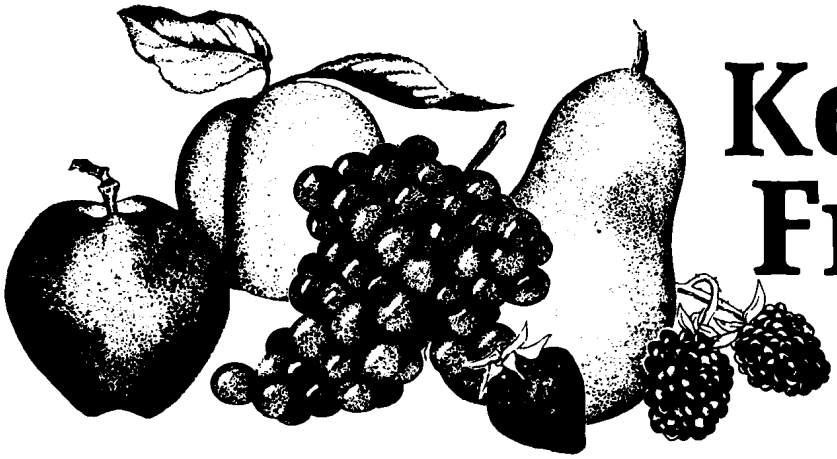

Kentucky Fruit Facts

Research & Education Center
P.O. Box 469, Princeton, KY 42445

October 2001 (10-01)
John Strang, Editor, Marilyn Hooks and Karen Shahan, Staff Assistants

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

Upcoming Meetings

Oct. 18 - Sustainable Agriculture Workshop, "Third Thursday Thing," Kentucky State University Farm, Frankfort, KY. *Shiitake Mushroom*, 10 am-1:30 pm, hands-on demonstration. Hope Crain, Jim Mansfield, and Jack Gonia, KY Dept. of Agriculture. Contact 502-597-6310; e-mail: msimon@gwmail.kysu.edu.

Oct. 20 - Annual Meeting of the KY Vineyard Society, Clubhouse, Buffalo Trace Distillery, Frankfort, KY. Contact John Pitcock 502-564-7360 ext. 343.

Oct. 27 - Kentucky Nut Growers' Fall Meeting, Kentucky State University, Frankfort, KY. Contact Hugh Ligon 270-827-9044 or Kirk Pomper 502-227-5842, e-mail:kpomper@dcr.net

Jan. 7-8, 2002 - Annual Kentucky State Horticultural Society, Kentucky Vegetable Growers Association and Kentucky Grape and Wine Short Course meeting. Holiday Inn North, Lexington, KY. Contact John Strang 859-257-5685.

January 15, 2002 – Commercial Vegetable Production & Marketing Seminar. Boone County Extension Office, 8:30 am to 4:30 pm. For free lunch and registration, or to receive an informational flier, call 859-586-6101, or e-mail Mike Klahr at mklahr@ca.uky.edu.

January 24, 2002 – Specialty Crops & Nich Crops Production & Marketing Seminar, 8:30 am to 4:30 pm. For free lunch and registration, or to receive an informational flier, call 859-586-6101, or e-mail Mike Klahr at mklahr@ca.uky.edu.

Feb. 15, 2002 - Northern Piedmont Specialty Crops School. Southern Livestock Center, Oxford, NC. Contact Carl Cantaluppi 919-603-1350.

Midwest Apple Improvement Association Annual Meeting

Dawes Arboretum, Newark, Ohio
November 8, 2001 – 8:00 a.m. - 4:30 p.m.

Directions: Take I-70 35 miles east of Columbus, Ohio to exit 132 and turn north onto SR 13. Dawes is located three (3) miles north of I-70.

Nearby Motels include Amerihost Inn (ph. 740-928-1800) and RedRoof Inn (ph. 740-467-2020) located at exit 129 (Hebron, Oh).

Program

Moderator - Dave Doud, President

8:30 am - 9:30	Apple Collecting Adventures in Kazakhstan, Russia, China and Turkey. Phil Forsline, Apple Curator USDA/ARS National Germplasm Rep. USDA, Geneva, NY
9:30 - 10:15	Apple Flowerbud Hardiness Diane Miller, Dept. of Horticulture, Ohio State Univ.
10:30-11:30 am	Worldwide Evaluation and Utilization of Wild Apples from Kazakhstan with joint breeding efforts in Geneva, NY and Newark, Ohio (MAIA). Phil Forlsine
11:30 - 1:00 pm	Tour Kazah apple seedling plot and lunch.
1 - 1:45	Update on PRI Apple Breeding Jules Janick, Dept. of Horticulture, Purdue University
2 - 2:30	Update on Apple Breeding in NZ Peter Hirst, Dept. of Horticulture, Purdue University
3 - 4:15 pm	MAIA Business Meeting Dave Doud presiding.

(If you need additional information, phone Mitch Lynd (740-967-5355) or Ed Fackler (812-347-0193).

APPLE FRUIT DISEASES CAN BE DEVASTATING

by John Hartman

Fall is the time of year when apple fruit diseases appear with great frequency in orchards and backyard trees. Although early spring weather was dry, wet weather during some parts of the summer have both favored disease development and prevented timely applications of pesticides. Orchard and tree sanitation and vegetation management programs may have also suffered. The following list describes some of the fungus-caused diseases of apple fruits we expect to see in the fall.

Apple scab -- Look for dark gray to brown, corky spots, uneven or deformed fruit growth, and skin and flesh cracking. Pin point scab with rough, black, circular spots may develop in storage following late season infections. We are seeing less apple scab on the fruit this year because of the early spring dry weather.

Bitter rot -- Usually, bitter rot infections produce slightly sunken, circular brown spots that may be surrounded by a red halo. When the spot becomes nearly an inch in diameter, spore-bearing structures appear in concentric circles on the diseased apple surface. Spore masses may be seen as orange to pink sticky material on the rotted spots. A brown decay beneath the diseased spot extends towards the fruit core in the shape of a cone. Kentucky growers sometimes have severe problems with bitter rot.

Botryosphaeria rot (white rot) -- The disease first appears as sunken, circular, tan to brown spots, often with a reddish or dark halo. Scattered clumps of tiny dark fungal pycnidia (fruiting structures) may appear on the surface. As the decay expands, the rotted area extends towards the core as a cylinder of affected tissue. The decay is soft and watery, having a clear to light tan color under warm weather conditions. These decay characteristics separate this disease from black rot and bitter rot.

Black rot -- On mature fruit, diseased spots, surrounded by a red halo, appear black (often with alternating concentric rings of black and brown) and are not sunken. The decay is firm

and dark; the surface of diseased fruit may show scattered black fruiting structures of the causal fungus. Another phase of this disease, frogeye leaf spot, can be observed in early summer.

Sooty blotch and flyspeck -- Colonies of the sooty blotch fungus may appear on the fruit surface as circular to irregular areas of dark fungal growth having a sooty appearance. Flyspeck colonies appear as well-defined clusters of shiny, black superficial dots. These two fungi often appear on the surface of the same fruit. Although the fungi are superficial, infections affect the keeping quality of the fruits and makes them less salable. Sooty blotch and flyspeck are already present on unsprayed fruit.

Cedar quince rust -- A large, dark green diseased area appears on the calyx end of the fruit, causing puckering and distortion. The brown, spongy tissue beneath the affected skin may extend to the core. If high levels of cedar apple rust are observed on apple leaves this year, one might expect more cedar quince rust as well.

Powdery mildew -- The surface of the fruit may be covered with a network pattern of russeting (cork cells). Powdery mildew levels appear to be fairly low this year.

Cork spot -- This problem is not caused by fungi, but by calcium deficiency. The symptoms, small, circular, reddish sunken spots with brown flesh beneath, are similar to some fungal diseases.

State Department of Agriculture, Division of Horticulture & Aquaculture Has Moved

The Division of Horticulture & Aquaculture has a new address and phone number. This Division has moved to the Fifth Floor of the Fair Oaks Building. A converted whiskey warehouse off HWY 421 just east of Capital Plaza Tower, Frankfort. Please note the new phone, fax and address, e-mail remains the same. Come visit our new digs!

Jim Mansfield, Director, Division of Horticulture & Aquaculture
Hope Crain, KY Organic Program Coordinator
Anna Sidebottom, Marketing Specialist

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E-mail: Jim.Mansfield@kyagr.com

CONSIDER TREE FRUIT COLLAR ROT CONTROL IN THE FALL

by John Hartman

Collar rot, (crown rot) caused by the soilborne fungus Phytophthora cactorum and also by P. cambivora and P. cryptogea, is an occasional, but serious problem in many Kentucky apple and peach orchards. It is especially severe on apple trees that are grown on Malling Merton 106 (MM106) rootstocks. The disease is most frequently associated with those areas of the orchard having heavy, poorly-drained soil. Phytophthora collar rot attacks the lower trunk just at or below the soil surface. One of the first indications of a collar rot problem is the production of reddish leaves in late summer. This is soon followed by general stress symptoms, which include poor terminal growth, small off-colored leaves, and numerous, small, brightly colored fruit. Cankers at the base of the main trunk can be recognized by the dark, sunken appearance of the bark; tissue beneath the bark has a dark brown to black marbled appearance. Trees are relatively resistant to infection while they are dormant.

Although near-normal soil moisture levels prevailed for much of the summer, July rainfall totals were bolstered by occasional heavy rains in some regions. Periods of soil saturation promote root and collar rot diseases for two reasons: (1) saturated soil conditions are required for the production and movement of the infective fungal spores; and (2) lack of oxygen in saturated soils inhibits new root growth making it hard for trees to "grow out of" non-fatal attacks. Lack of oxygen may also actually increase the rootstock's susceptibility to the diseases.

Collar Rot Control: Site selection, rootstock selection, and good water management are the most important factors for control of collar rot. Orchard soils should be well-drained and leveled before planting. The apple rootstocks MM.106 and Ant.313 are particularly susceptible; M.4, M.7, M. 26, Bud.490, P.18, and MM.111 are less susceptible, and M.9, Mark, Bud.118, Bud.9 and seedling are relatively resistant. However, these susceptibilities may vary with the Phytophthora species. Peaches are very susceptible. If collar rot occurs after trees are planted, improve drainage in the vicinity of the trunk, being sure water is not allowed to pool in a soil "saucer" around the base of the trunk. If subsurface drainage is a problem, the only solution may be the installation of drainage tile through the area in which trees are planted -- a task much more easily done before trees are planted!

In addition to good water management, fungicide applications are suggested for those areas of the orchard likely to have collar rot problems. Because these diseases occur so sporadically and the cost of chemical treatments is high, growers should consider only spot treatment of blocks with susceptible rootstocks growing in poorly drained areas. Chemical control can be an effective option, but must be applied before symptoms become obvious, because by then the tree is usually girdled. Ridomil Gold EC (mefanoxam) is labeled for use on bearing apple and stone fruit trees. According to the label, Ridomil 2E can be applied to apples in the fall after harvest. Now is a good time to check the orchard for preliminary symptoms of collar rot (abnormally reddish leaves) and for chronic collar rot (smaller than normal, or somewhat yellowed leaves) or to determine areas of the orchard where trees are vulnerable. Remember that the fungicide will not revitalize trees showing moderate to severe crown rot symptoms.

Notice that the application rates and instructions are different for apples and stone fruits. Aliette WDG is another fungicide registered for apple and stone fruit collar rot. Aliette is applied as a foliar spray and is normally used in spring and summer.

SWITCH, A NEW FUNGICIDE FOR STRAWBERRY GRAY MOLD

by John Hartman

Strawberry gray mold fruit rot, caused by the fungus Botrytis cinerea is one of the most devastating diseases of Kentucky strawberries. A new fungicide, Switch, has recently been granted federal registration for use against Botrytis gray mold in strawberries and also in onions. Switch fungicide is a product of the Syngenta Corporation.

Switch 62.5 WG fungicide is formulated as a prepack mixture of two novel active ingredients, cyprodinil and fludioxonil. Cyprodinil is the systemic component of the product, which is taken up into the cuticle and waxy layers of leaves and fruits and is distributed to other parts of the plant. Fludioxonil is the residual component of Switch, which stays on the leaf and fruit surfaces to provide contact activity.

The fungus Botrytis cinerea, cause of gray mold, has developed resistance to several of the fungicides that are listed in our small fruit disease recommendations (Kentucky Commercial Small Fruit and Grape Spray Guide 2001, ID-94). Because of its novel modes of action, Switch demonstrates no cross-resistance among pathogen strains. This, along with its multi-site mode of action, makes Switch an excellent fit for integrated pest management programs. Switch is also compatible with most commonly used fungicides and insecticides. This fungicide was registered under EPA's reduced-risk program, so Switch should be relatively environmentally benign. When using Switch, as with any pesticide, growers are urged to read and understand the label.

Herbicide Resistance or Weed Population Shift?

Rob Crassweller, Pennsylvania State University, Fruit Times Newsletter Vol. 20, No 15

For several years we have been hearing about farmers discovering herbicide resistant weeds. Weed scientists have confirmed that certain species of weeds that were once susceptible and easily controlled by herbicides are no longer controlled. Herbicide resistance most likely occurs when a particular population of weeds are continuously exposed to a particular family of herbicides. The most common example is the development of triazine resistant pigweed and lambsquarters. In orchards the only triazine material we have is simazine (Princep), which is one of our most commonly used materials. Rotation away from a continual usage of simazine will help reduce the chance of resistance build up.

However, some people believe that to be effective in preventing herbicide resistance you need to not only rotate specific herbicides but you also need to rotate between similar modes of action. Mode of action refers to how the herbicide will kill the plant once it is absorbed. Some herbicide modes of actions are very specific and only work on one site in the plant. Others may work on several sites. As with fungicides and insecticides the more sites a herbicide affects the less likely resistance is to develop. In the case of simazine it acts by inhibiting photosynthesis. The same is true of norflurazon (Solicam), diuron (Karmex, others), and terbacil (Sinbar).

Continual use of one particular residual herbicide can also lead to a gradual shift in the weed species present. Knowing what herbicides are meant to work best on which weed species can tell you if you are causing that population shift. One of the best things you can do during the supervision of your harvest crews is to notice the weed population in your various orchard blocks. You should note where the weed problems are the worst, how dense the weed growth is, and the weed species present. Follow up by making a physical map of the weeds to prepare to control the problem.The importance of knowing the weed species present and the extent of the spread can provide you with valuable insight on possible control strategies. Not all weed problems need to be controlled by a blanket application to row middles. Some weeds introduce themselves into orchards in discrete patches rather than over the entire orchard floor. Quackgrass, nutsedge and thistle tend to enter an orchard in one area then jump in patches. Weeds that produce fruit and seeds for animals to disperse may also typically develop in patches. Site specific herbicide applications to these 'patch communities' will be more cost effective as long as they are timed appropriately. On the other hand weed species that depend primarily on wind dispersal of their seeds for spread may spread evenly over the orchard, a good example is dandelion and their light airy seeds. This is also a point of attack for control. Destroy those weeds before they flower and shed seeds. Pay particular attention to the edge of your orchards or along the roadsides.

In the future with fewer herbicides and increased cost custom tailoring weed control by block and weed species present may become a more important method of control.

The Economic and Fiscal Implications of Demographic Changes in Kentucky: Insights from Census 2000

Excerpted from Morris, Ellen Burkett, City magazine, Winter 2001, Kentucky League of Cities: Lexington, KY by Eric Scorsone

The release of the 2000 Census has raised important questions about the demographic makeup for the nation and changes on the horizon. Kentucky, like other states, will experience dramatic demographic changes in the next 20 years. The 50-to-59 age group is expected to experience the strongest population growth in the next ten years in the state. After that two-thirds of Kentucky's population growth will occur in the over 65 age group. Demographic and income change is likely to create new challenges and provide new opportunities for rural communities. Traditionally, rural economies were based on tangible goods such as agriculture, natural resources and manufacturing. However, in the 21st century, service based

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industries and non-work related income are becoming important engines of growth for rural economies.

Non-work related income is derived from sources such as dividends, interest payments, rent and retirement income as opposed to traditional sources of income from employment: wages and salaries. Recently, non-wage sources of income have been growing faster than wage income. These non-wage sources now represent nearly one-quarter of all income to Kentucky households. In 1990, retirement-based income represented 4.1% of personal income, while in 1999 that share had risen to 6.2%. Further, retirement income is the fastest growing segment of personal income. The growing role of retirement income in particular is important to the future of rural Kentucky and public service needs of local governments.

In Kentucky, the population over 65 is expected to increase dramatically over the next 20 years. The share of population over 65 is 12.5% today, but will be nearly 20% in 2020. Retirement-based income is an important asset to a rural community's future. The growing wealth of older Americans provides a potential new source of employment growth for local communities in fields such as health care services, nursing, recreation and tourism. Retirement income may also assist in stabilizing a local economy because it is not tied to business cycles or downturns in the economy unlike manufacturing or agriculture.

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John Strang
Extension Fruit Specialist