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## Catch the “BLUES”

*By Ben Fuqua*  
 Professor, Soil Science  
 Missouri State University

Missouri blueberry growers are beginning to catch the blues-“blueberries that is!” When many folks are getting “cabin fever” and feeling the “wintertime blues”, blueberry growers are gearing up and making plans for the 2006 berry season. While winter months are good times to catch up on paper work and other “procrastinated” chores from last year, it’s also a good time to gather new ideas and information on blueberry culture, production, and marketing practices.

**Attend meetings:** Conferences and meetings are excellent places to interact with university and industry researchers about the latest equipment, products, and procedures for producing high yields of quality blueberries. One such Conference, the 2006 Missouri Small Fruit and Vegetable Conference, will be held in Springfield on February 20-22. The blueberry session is scheduled for Tuesday afternoon (February 21) and an excellent program has been planned. Drs. Elizabeth Wahle, Laszlo Kovacs, Mike Roling, and Pam Trewatha will speak on several topics of interest to all blueberry growers. The trade show, with representatives from various industries and research agencies that specialize in equipment, chemicals, and supplies for small fruit production, will be another “must visit” site. These meetings are also good places to glean information from other growers about specific culture and marketing challenges they’ve encountered. The knowledge gained from these informal visits is often worth the cost of the entire conference.

## From the Editors

*by Marilyn Odneal*

To get your new year started off on a high note, please see where Suzi T. is “gettin’ figgy with it” in her fun and interesting article on fruit names. Paul André provides us with timely updates and upcoming events are also listed. Please note that you can subscribe or unsubscribe to the online edition of the newsletter, access back issues in pdf format and look at the table of contents for past editions by going to <http://mtngrv.missouristate.edu/newslet.htm> Request paper subscriptions by contacting Pamela Mayer at the address below.

And last but not least, the Berry Basket staff wishes all of you a healthy and bountiful new year.

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### **Join the Blueberry Council of Missouri:**

The Blueberry Council of Missouri was formed in the early 1980's to promote Missouri grown blueberries. Members have done an excellent job as manifested by the high consumer demand for fresh blueberries. The officers of the Council also do a great job, but need more growers to become active participants. The benefits of belonging to an organized blueberry growers group far surpass the membership dues. The next Council meeting is scheduled for February 21 (immediately following the blueberry session). Plan to attend and add your support to the Council this year. Remember, this is your organization. Its' success depends on you!

**Start planning:** It's never too early to start planning for the 2006 blueberry season. Update customer mailing lists, telephone numbers, and web sites. Evaluate last years harvest/marketing plans and develop additional strategies for the new crop. One key to success is to have plans in place long before ripe berries appear on the bush!

Buy (or at least locate suppliers of) plants, fertilizers, pesticides, buckets, mulch, irrigation repair parts, nets or other equipment that will be needed during the year. Plan now. An early start allows growers to "comparative shop" for many of these items.

**Sharpen pruners:** Oil, sharpen, and replace blades of pruning equipment - the time to prune blueberry bushes is just around the corner!

## **Revised 2005 Worker Protection Standard How-to-Comply Manual Available**

*Paul André*

*Pesticide Program*

*Missouri Department of Agriculture*

EPA has released a revised version of the *Worker Protection Standard for Agricultural Pesticides How-to-Comply* manual. This compliance assistance tool has been updated to reflect amendments to the Worker Protection

Standard (WPS) since 1993. This federal regulation is designed to protect agricultural workers and pesticide handlers. The revised manual provides detailed information on who is covered by the WPS and how to meet regulatory requirements. The updated manual will facilitate better protection of pesticide workers and handlers in agriculture from the potential risks of pesticides.

**The new 2005 WPS How-to-Comply Manual supersedes the 1993 version. Changes to the WPS since 1993 have now made the earlier version obsolete. Its continued use may lead growers to be out of compliance with the WPS.**

The original 1993 WPS How to Comply (HTC) Manual has been updated to reflect amendments made to the WPS in 1995, 1996, and 2004. The new 2005 WPS HTC Manual supersedes the 1993 version. The new manual includes information on all recent regulatory amendments and administrative exceptions, such as:

- changes in the WPS worker training requirement that requires untrained workers to be provided basic pesticide information before entering pesticide-treated areas;
- reduction in the number of days decontamination supplies must be available to workers after application of low-risk pesticides, and the supplies are to be located together;
- modification in the language requirements for treated-area warning signs;
- modification in the size requirements for treated-area warning signs;
- early-entry exception for irrigation tasks and for limited contact tasks;
- optional use of separable glove liners beneath chemical-resistant gloves;
- optional wearing of gloves by agricultural pilots when entering or leaving aircraft; and
- exemption for certified or licensed crop advisors and persons under their direct supervision.

The revised manual also contains additional resources to assist agricultural employers to comply:

- Warning Sign Size Specifications for Greenhouses and Nurseries;
- Early-Entry Exceptions Chart;
- Crop Advisors Chart;
- WPS Requirement to Provide Basic Pesticide Safety Information to Untrained Workers; and
- EPA Chemical Resistance Category Chart.

To further assist agricultural employers with WPS compliance, EPA also offers a CD-ROM version of the revised WPS HTC manual which contains several additional compliance assistance tools not available with the printed version of the manual. The CD-ROM version of the HTC manual also contains:

- EPA's WPS Worker Training Handbook (English/Spanish);
- EPA's WPS Handler Training Handbook (English and Spanish);
- 13 additional WPS fact sheets;
- EPA's *Recognition and Management of Pesticide Poisonings* handbook; and
- Several other related references.

### How to Obtain the New HTC Manual

The new HTC manual is available in PDF format via the web at: <http://www.epa.gov/agriculture/htc.html> It is also available in paper and CD-ROM versions through EPA's Agricultural Compliance Assistance Center (888.663.2155). The HTC manual may also be available through major agricultural supply catalogs or retailers. Information about obtaining the revised manual is available through the Pesticide Program in the Missouri Department of Agriculture (573.751.5504 or [www.mda.mo.gov](http://www.mda.mo.gov)).

## Considering Cut Flowers?

*By Marilyn Odneal*  
*Horticulture Outreach Advisor*  
*Missouri State University*

Have you ever considered producing cut flowers for profit? If you have, this article will help get you started.

**Consider the source:** Do your research before making the decision whether or not to produce cut flowers for market. The reference section at the end of this article is a good place to begin. Attending workshops on cut flower production and visiting growers and market outlets is also a good idea. You may also want to consider membership in the Association for Cut Flower Growers <http://www.ascfg.org/>

**Consider the market:** Before you plant, you need to be sure you can sell your crop. Consider retail florists, wholesale florists, farmer's markets, grocery stores, bed and breakfasts, by subscription or through Community Supported Agriculture programs (CSAs).

**Consider the plants:** After choosing the market, decide what flowers to grow to fit the market. The "ideal" cut flower is one with low cost of production, high value and unlimited demand, high production per unit area, long production and marketing season, long productive life, ability to sell fresh and to sell surplus dried or preserved, a postharvest vase life of at least 7 days, resistance to pests and diseases, resistance to heat and drought stress, long stems (18 inches), easy to harvest and handle, and pretty and fragrant flowers, foliage or stems. Of course, no plant is perfect, but you must consider all of the crops pros and cons before deciding.

**Consider the site:** Find an area sheltered from the prevailing winds or plant windbreaks. A 5 foot wide row of rye may be planted about every 50 feet, but a permanent shrub border can be developed as well. A source of water is necessary for irrigation, mostly done with



T-tape or other drip tubing down the row. Soil testing and improvement is absolutely critical. The Perennial Plant Association Guidelines for perennial beds is a good recommendation. They recommend a soil analysis after amending the soil with organic matter and possibly fertilizer should be at least pH of 5.5 - 6.5, organic matter content of 5% by weight, 50 pounds per acre (25 parts per million) available phosphate (phosphorus), and 120 pounds per acre (60 parts per million) of available potash (potassium).

**Prepare the site:** Prepare the soil by eliminating perennial weeds and incorporating organic matter. Take soil samples after soil amendment to insure that it is in the recommended range. Prepare raised beds of about 6 to 8 inches high and about 3 to 4 feet wide to insure good drainage. Decide on your weed control system which may include plastic mulch, organic mulch, and/or herbicides. Decide if you will mulch or seed the row middles. Set up your irrigation system and have it ready to go. Order your seeds or plugs for the growing season well in advance of the planned planting date.

**Plant the crop:** Planting dates depend on the target time for marketing and the plant itself. You may want to incorporate 25 to 45 pounds of nitrogen into the beds. Generally annuals are planted 4 to 6 inches in the row with 6 - 8 inches between rows on the beds. Most perennials are planted about 1-foot by 1 foot spacing on the beds. Plant at the depth the plug was growing in the pot or follow recommendations for seed planting depth. Water after planting.

**Support the plants:** To insure straight stems, some flower crops will have to be supported. A 4 to 6 inch mesh net suspended horizontally over the bed or perimeter stakes with twine tied around the row can be used.

**Plant Care:** Keep weeds in control. Scout for insect and disease problems regularly. If a problem occurs, make sure it is identified properly so recommended measures can be used. Keep a journal of the entire season.

**Harvest:** Make sure that you know the stage of growth or flower development recommended



*Netting is suspended horizontally above beds for plant support. (Photo: Johnny's Selected Seeds Online Catalog.)*

for harvest. Flowers are best harvested in the morning. Harvest with sharp shears. Harvest containers should be plastic disinfected with a 1:10 clorox solution and the harvested flowers should be placed in tepid (110 degree F) water with a floral preservative.

**Postharvest handling:** After harvesting, the flower stems should be cut underwater to avoid air being pulled up into the stems. Most flowers should be stored at 32 - 35 degrees Fahrenheit and 90 - 95% relative humidity. Maintain favorable air circulation. To avoid problems from ethylene gas, do not store flowers near motors and welding equipment, ripening fruit, or old or decaying plant material.

**Selling:** When selling to the market you have chosen, remember to aim to price plants properly in order to cover your costs and realize a good profit.

**Selected References:**

Cold Storage for Specialty Cut Flowers and Plant Material

*Kansas State University MF-1174*

<http://www.oznet.ksu.edu/library/hort2/MF1174.PDF>

The Flower Farmer: An Organic Grower's Guide to Raising and Selling Cut Flowers. 1997. Lynn Byszynski. Chelsea Green Publishing.

Getting Started in the Production of Field-grown Cut Flowers

*Virginia Cooperative Extension*

<http://www.ext.vt.edu/pubs/envirohort/426-618/426-618.html>

Growing for Market's Half-Acre Flower Plan. 1995. Lynn Byszynski. Fairplain Publications.

Harvest Systems for Cut Flowers

*Kansas State University MF-2155*

<http://www.oznet.ksu.edu/library/hort2/MF2155.PDF>

Postharvest Handling of Fresh Cut Flowers and Plant Material

*Kansas State University MF-2261*

<http://www.oznet.ksu.edu/library/hort2/mf2261.pdf>

Specialty Cut Flowers: A Commercial Growers Guide

*Kansas State University MF-1034*

<http://www.oznet.ksu.edu/library/hort2/samplers/MF1034.asp>

Specialty Cut Flowers: The production of annuals, perennials, bulbs and woody plants for fresh and dried cut flowers. 1993. Allan Armitage. Timber Press.

Sustainable Cut Flower Production

*AATRA (Appropriate Technology Transfer for Rural Areas)*

<http://www.attra.org/attra-pub/cutflower.html>

The Well-tended Perennial Garden. 1998. Tracy DiSabato-Aust, Timber Press.

## Outdoor Power Equipment: Selection and Maintenance

*By Duane Gabriel*

*Tri-County Master Gardener*

### I. Selection of Dealer and Equipment

Selection of an Outdoor Power Equipment (OPE) dealer can be more important than the brand of equipment. Service and support after purchase must enter in to the decision to buy a certain product.

Horsepower is not as important as other features. Determine the most useful size machine; too big is as bad as too small. It is also important to try the machine at your place or on similar terrain, especially if you have slopes to work on.

**Tillers.** An iron gear case tiller is more durable than inexpensive chain drive tillers and is a better choice for the long run.

Front tine tillers have the Standard Rotating Tines (SRT) in the front of the machine that rotate forward in the same direction as the wheels. Rear tine tillers come with either SRT or Counter Rotating Tines (CRT). CRTs are much easier to operate and do a better job in sod and heavy soils. Some models are available with reversible SRT to CRT capability.

Mini-cultivators are small versions of the front tine tillers, are lightweight and portable, and are best for tight areas.

Again, choose the best machine for your particular situation.

**Chainsaws.** If a lot of use is planned, get a midsize saw that will take a pro chain. Chainbrakes are a feature that is very important for safety as they will stop the chain when kick backs occur.

### II. Storage and cleaning.

Do NOT use pressure washers because you get water into bearings and seals.

Disconnect the negative battery cable so

you do not have any slow battery drain. Keep the battery cool (not freezing) to minimize discharge and prolong life, and keep the battery charged (recharge battery every month or two).

Empty plastic tanks or leave gasoline in them and add stabilizer. Keep metal tanks full with stabilizer as metal tanks will rust if they are left empty in storage. To store with a full tank, fill the fuel tank, add stabilizer and run engine until fuel is through carburetor and lines. Fungi will live in gasoline. Gasoline will not last forever and generally lasts only 3 weeks to 1 month.

Store machines in dry place out of sunlight.

### III. Lubrication.

Oil cleans parts, cools parts and inhibits corrosion.

Change oil in the fall so dirty oil does not sit in the crank case. Run the engine at least 5 minutes after the oil change so the new oil is in through the engine.

Change oil at recommended intervals - more often in dusty conditions.

Check and change filters. Use quality filters. On many older chain case tillers I have added grease zerks to add lube.

Lubricate pivot points (points of rotation) with grease or oil.

Check oil before each use.

### VI. Belts and tires.

Don't store in light or direct sunlight. Don't leave tires flat because cracks will occur. Keep proper inflation.

Check belts, as they can be damaged. Belts require proper routing. Avoid contact with sticks.

Try to minimize shock loading by engaging and disengaging the blades slowly and engaging and releasing the clutch slowly. Don't engage the blades on in deep grass, engage in shorter area and pull into tall grass.

Make sure the area you are mowing is clear of obstructions.

Stop machine if burning odor or smoke is detected or unusual noise or vibration.

Disengage the blades and assess the problem.

### V. Blades.

Slow down when mowing over gravel or sand. Don't hit stumps. Keep the blades sharp and balanced. Install properly. Discard badly worn or damaged blades as they pose a safety hazard.

Saw chains are easily dulled when contact with soil or sand so avoid if possible.

### VI. Electrical maintenance.

Keep machine dry.

Clean battery terminals.

Keep battery charged.

Clean battery if dirt accumulates.

Sometimes the battery connection needs to be cleaned.

Disconnect battery before charging if it seems dead to avoid computer damage if you have a fuel injected, computer controlled engine.

Battery usually has a service life of less than 5 years.

If starter won't work, check the control position (blades engaged), fuse (in line from battery to starter), and battery connections and then charge.

***Editor's note:** This information was presented by Duane Gabriel at the Fall Horticulture Seminars held September 10, 2005 at the State Fruit Experiment Station at Mountain Grove.*

*Duane is a Master Gardener who has experience in many areas of horticulture including water gardening and greenhouse production. He is and active member of the Tri-County Master Gardeners and serves as parliamentarian for the group. He also has many years of experience in outdoor equipment sales and services. He is the owner and operator of: **Gabriel's Sales and Service LLC**  
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## Fruit Names and Expressions: What do they mean?

By Suzi Teghtmeyer

Evans Library of Fruit Science

Missouri State University

Haven't you wondered which came first – the fruit named *peach* or the color? Where did the phrase, *through the grapevine* originate? Are there other meanings for the word *fig*?

Recently I have been looking at the names of fruits, tracing them through the centuries, and collecting the metaphors, proverbs, and sayings associated with them. Questions like these led me to check sources like the *Oxford English Dictionary* and *The Century Dictionary and Cyclopedia* for answers.

I studied six fruits, among them *fig*, *peach*, and *grape/grapevine*. These names came into English from Old French (9<sup>th</sup> to 13<sup>th</sup> centuries), but the first two originated in Latin whereas *grape* was borrowed initially from Old High German.

Many of the names also had definitions other than pertaining to the fruit. Two obsolete *grape* definitions were a knob on the back of a cannon (1644) and a size of paper (1611). *Peach* as a color came into use in the 1830s. *Peach*, as a colloquialism for an exceptional or fine thing or person, was first documented in 1710 and is still used today.

*Fig* was used from the 1400s on to mean something worthless or no value, and out of that use came many phrases: *never a fig*, *care or give a fig*, and *be worth a fig*. In the Cornwall, England dialect, a *fig* is a raisin, hence, *figgy* pudding can be a pudding made with either *figs* or raisins. In the 1800s, a *fig* was a small piece of tobacco.

All three names have related terms are used in expressions. I can't list them all, but here are some of my favorites:

A common phrase that originated during the Civil War was *through (by) the grapevine*. It referred to a message that was usually incorrect or suspect. Real telegraph lines were in place

at the time, thus a message *by the grapevine*, or *grape-vine telegraph*, was a poor means of communicating a message. In current usage it generally means a rumor or a message passed from person-to-person. Other terms are *grapelet* and *grapeling* (an individual tiny *grape*), *grape-stones* (1589) meaning the seeds of *grapes*, and the adverbs *grapeful* (a lot of *grapes*) and *grapeless* (no *grapes*). There is also a *grape-cure*, a treatment of disease in parts of Europe which consists of eating only *grapes*, and *grape-cake*, the compressed mast left over from pressing *grapes*. In a sports vernacular, a *grapevine* is a figure skating move (1868 to current) and a hold in wrestling (1968).

There are a few additional phrases that involve *grapes*. One is *sour grapes* and refers to an item wanted may not be all that great once it is found unattainable. It originates in Aesop's fable *The Fox and the Grape*. The disgruntled fox, unable to reach a bunch of tasty *grapes*, walks away commenting that the *grapes* were probably *sour*. The phrase *Irish grapes* is an American euphemism for potatoes

An expression using *peach* is *cut your peaches*, meaning to carry on with your business at hand, i.e., *stop staring and cut your peaches*. There is also the American phrase, *if you don't like our peaches quit shaking our tree*. It means to quit complaining if you like our product and continue to use it. In the 1700s, *peachy* was a fermented peach liquor. The adjective *peachy* can mean a rosy color, or, as in the phrase *peachy keen*, mean fine or excellent, i.e., *that idea is peachy keen*. *Peacherine*, *pacherino*, and *peacheroo* are all American colloquialisms that also mean fine or excellent.

In the 1800s the phrase, *in full fig*, meant to be in full dress and equipment, to look nice or in good condition. The verb *to fig out* is the same thing. However, it can also apply to getting horses to look spirited, to 'trot up', sometimes by nefarious methods! In the 1500s and 1600s, a *Spanish Fig* or an *Italian Fig* was a poisoned *fig* slipped to someone to either make them ill or kill them. A verb form of *fig* coincides with the previous definition; *to fig* someone was to slip



them a poisoned *fig*. At the same time, *to fig* was a slang term for picking pockets and a *fig-boy* was the pickpocket.

I hope you have had a peachy keen time reading this article. I recommend you enjoy the rest of *The Berry Basket* with a nip of peachy and a piece of figgy pudding. [Note: I have not cited where I got this information, but I'd be happy to share it with you if you e-mail me ([SuziTeghtmeyer@missouristate.edu](mailto:SuziTeghtmeyer@missouristate.edu)).]

## Endangered Species Protection Program Update

*Paul André*

*Pesticide Program*

*Missouri Department of Agriculture*

In early December, the Environmental Protection Agency (EPA) published its final approach to Field Implementation of the Endangered Species Protection Program (ESPP) in the Federal Register. The revised ESPP will address, to the degree possible, endangered species issues within the Agency's existing processes of registration, reregistration, and in the future, registration review. If geographically specific pesticide use limitations are necessary, EPA will create Endangered Species Protection Bulletins that will contain enforceable use limitations for the pesticide. Mandatory bulletins will be referenced on the pesticide product label. These mandatory bulletins will be available on the Web at [www.epa.gov/espp](http://www.epa.gov/espp) or by calling 1-800-447-3813. The following is a brief description of the revised program.

The goal of the ESPP is to carry out EPA's responsibilities under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) in compliance with the Endangered Species Act (ESA), while at the same time not placing an unnecessary burden on agriculture and other pesticide users. Under the approach described in the ESPP, if EPA determines that use of a pesticide poses a risk of harm to listed species

or their designated critical habitat that merits additional restriction, the pesticide label will refer to the Endangered Species Protection Bulletins to inform users of enforceable geographically specific use limitations for the pesticide. This approach is intended to ensure that use of the pesticide will not jeopardize the species or adversely modify critical habitat.

EPA is responsible for reviewing information and data to determine whether a pesticide product may be registered for a particular use. As part of that determination, the Agency assesses whether a listed species or its designated critical habitat may be affected by use of the product (i.e., a "may affect" determination). When EPA determines a pesticide may harm an endangered species, EPA can either change the terms of the pesticide's registration or, through consultation with the Services, develop appropriate mitigation measures. All pesticide products that EPA determines "may affect" a listed species or its designated critical habitat may be subject to the ESPP.

If those mitigations are geographically specific, EPA will develop a Bulletin (or Bulletins) to put the mitigations into place. These mitigations will be specific to the area(s) where the species may be exposed to pesticide use. To learn how EPA evaluates the potential risks from pesticides to listed species, see EPA's Overview Document. For details on how EPA consults with the Services to protect listed species and designated critical habitat, see the Services' Counterpart Regulations.

When referenced on a pesticide label, Bulletins are mandatory, enforceable pesticide use limitations. Pesticide users who fail to follow label provisions applicable to their pesticide application, whether or not that failure results in harm to a listed species, would be subject to enforcement under the misuse provisions of FIFRA [section 12(a)(2)(G)]. Label statements referencing enforceable Bulletins will instruct users to the Web site address from which they may obtain a Bulletin, or a phone number they may call if they do



not have web access (see above). Bulletins will generally include a map of the county or parish to which it applies, a description of the species being protected, a list of the pesticides of concern and their use limitations. Once pesticide labels with such labeling appear in the marketplace, Bulletins will be available via the EPA's website or via a toll free number; both of which will be identified on the pesticide label.

The ESPP will incorporate public participation within the existing processes of registration, reregistration and registration review, where appropriate. The processes for public participation during registration and registration review are under development. However, there may be other opportunities for participation relative to listed species protection. As those processes are developed they will be published on EPA's web site, [www.epa.gov/espp](http://www.epa.gov/espp). States and Tribes will continue to be integral to the success of the ESPP. State and Tribal input may enhance the effectiveness of different approaches to listed species protection; therefore, State and Tribal governments may be afforded specific opportunities for Bulletin review.

With publication of the FR notice, EPA takes its first step in implementing the ESPP. Bulletins will become enforceable upon reference to them on a pesticide product label. Pesticide users may check for Bulletin availability no more than six months before applying a pesticide.

#### **For more information**

For questions on the field implementation aspects of the ESPP, contact Mary Powell ([powell.mary@epa.gov](mailto:powell.mary@epa.gov)) or call (703) 305-7384. For questions about technical aspects of the ESPP, contact Arty Williams ([williams.arty@epa.gov](mailto:williams.arty@epa.gov)) or call (703) 305-7695. To learn more about endangered and threatened species or their designated critical habitat, visit the U.S. Fish and Wildlife Service's Endangered Species Program homepage at: <http://endangered.fws.gov>. Information about the revised ESPP can also be obtained from the Missouri Department of Agriculture, Pesticide Program at 573.751.5504 or [www.mda.mo.gov](http://www.mda.mo.gov)

## **Agroforestry**

*By John Avery*

*Horticulture Research Associate*

*Missouri State University*

Agroforestry is new market opportunities for landowners that entails sustainable agriculture, land stewardship, improved water quality, wildlife habitat, and diversified farm income. In practice, agroforestry helps the landowner to diversify production, income, and markets while improving the soil and water, reducing non-source point pollution, reducing erosion and damage due to flooding. Integrating the practices of agroforestry into his operation, the landowner can protect biodiversity, increase habitat for fish and wildlife while preserving the land resources for generations to follow.

Agroforestry research brings together a number of separate disciplines such as forestry, horticulture, entomology, pathology, wildlife/fisheries, soils, atmospheric science, agricultural economics and rural sociology. Agroforestry research strives to integrate these various disciplines into research that can give answers to landowners on setting up an agroforestry oriented operation which will have sustainable production and economic goals.

Agroforestry is not a one size fits all program but a diversified program that strives to individualize each landowners operation to their locale, environment, economic needs, and desires while sustaining the natural environment for wildlife and fish. Each landowner must look at their goals, desires and location to integrate these with needs of the local community and the natural environment with the goal of filling a market niche that provides products to the local community in a sustainable way while protecting the natural environment.

The University of Missouri Center for Agroforestry has identified five key practices in agroforestry for the landowner to use in his operation. They are alley cropping, forest farming, silvopasture, riparian buffers, and

windbreaks. They are doing extensive research in these areas of practice at the New Franklin Station and other stations around the state.

**Alley cropping** is the planting of a forest or nut crop at wide spacing and cropping the alleys with another agronomic or horticulture crop. Examples of alley cropping are planting black walnut or pecan trees in wide rows with corn, soybeans, or wheat in the alleys. Alternatively, a horticultural crop like vegetables or small fruits could be planted in the alleys. This allows for production and income on a piece of land while the tree crop grows to maturity. The tree crop may be planted for its nut production as in the example used or for high value lumber production. The purpose of alley production is to provide short term income while the main crop grows to maturity.

**Forest farming** takes land that is in forest and integrates other high value crops which can be grown under or requires high shade for growth in an area to increase production and income on a continuing basis. Examples of crops which can be grown in the forest are ginseng, shiitake mushrooms, and decorative ferns.

**Silvopasture** is the combination of trees, pasture, and livestock into a single management practice which results in income from the tree crop and the livestock. Trees may be used for production of fruit, nuts, or timber. The pasture can be used for hay or grazing. Some precautions to watch for are damage to young trees by livestock and compaction of soil during grazing. Benefits for the system are better quality forage during the summer due to shading of grasses and better growth of livestock due to cooling effect of shade. With some evergreen tree species, winter protection is a benefit to livestock. The silvopasture system returns short term income to producer through livestock or hay, and long term income through the harvest of the tree crop.

**Riparian buffers** are tree, shrubs, forbs, and grasses planted in distinct zones to filter run off from an adjacent area of nutrients and particulates to protect the water quality in

streams, lakes, or ponds. Various decorative trees or shrubs can be used, such as red osier dogwood, curly willow or berry crops, for extra income from the riparian zone. The riparian buffer can serve as a draw for wildlife, in particular, waterfowl for lease hunting.

**Windbreaks** are planted and managed to provide protection for crops, livestock, and fields. They provide protection to crops from wind; reducing lodging in crops like cereal grains and corn. In winter a windbreak can cause more even distribution of snow across a field. It can provide protection for livestock from winter winds and provide shade in the summer. Windbreaks reduce wind erosion in plowed fields. Wildlife can benefit with protection from the weather and can use the windbreaks as travel corridors between woodlots.

The Department of Fruit Science has worked with the people of Missouri and the Midwest for years with traditional fruit crops such as apple, peach, grapes, and blueberries to name a few, but are now looking to native and non traditional crops in collaboration with the University of Missouri Center for Agroforestry. There are now plantings of native crops like elderberry, persimmon, pawpaw, black walnut, pecan and one non-native the Chinese chestnut at the Fruit Experiment Station. With the millions of acres of forest and pasture in the state of Missouri there is a lot of potential for landowners to increase income and environmental benefits from their land.

For more information on agroforestry, go to the University of Missouri Center for Agroforestry web site at <http://www.centerforagroforestry.org/practices/index.asp>

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## Coming Events

### Missouri Small Fruit and Vegetable Conference

February 20 - 22 2006

Clarion Hotel and Conference Center  
Springfield, Missouri

Monday, Feb 20

PreConference Bus Tour

Also featured, an Ornamentals Session

Tuesday Feb 21

Keynote, Marketing, Vegetable and Blueberry Sessions

Tuesday Evening Feb 21

Organic Marketing Workshop

Wednesday Feb 22

Strawberry and Alternatives Sessions

Concurrent Session

Wednesday Feb 22 10am - 4 pm

Missouri Farmers' Market Assn. Workshop

For more information contact:

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Dept. of Fruit Science

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Mountain Grove, Mo. 65711-2999

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<http://mtngrv.missouristate.edu/calendar.htm>

### Spring Horticulture Seminars

presented by the Tri-County Master Gardeners  
and

the State Fruit Experiment Station

Saturday, March 18, 2006

1 - 4 pm

Faurot Hall

State Fruit Experiment Station

Missouri State University-Mountain Grove

Mountain Grove, Missouri

### *featuring*

#### **Naturescaping**

**Melanie Carden-Jessen**

Conservation Education Consultant

Missouri Department of Conservation

#### **All About Roses**

**Bill Eskes**

Hummert International

Followed by a tour of the **Ozark Home Landscape**, weather permitting.

For more information, contact

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or

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