



# The Berry Basket

Newsletter for Missouri Small Fruit and Vegetable Growers

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## Preparing for Y2K

by Ben Fuqua

The 1999 blueberry harvest has just ended, yet it's time for growers to start preparing for the 2000 berry season. Late summer and early fall are critical times in the life of a blueberry plant. Fruit buds for next year's crop are being formed, plants are storing energy needed for early spring growth, and the complex processes associated with hardening of plants are taking place. While I'm sure everyone would like a little R & R, this is not the time to ignore your blueberry plants. Attention to the following activities now can have a positive impact on berry yields in Y2K.

**Irrigation:** While blueberry plants use larger amounts of water for fruit formation and production, adequate water is just as crucial during the post-harvest period. In most years, supplemental water for blueberries in Missouri will be required during August and September. Cooler temperature and increased rainfall in late September and October usually provides enough water for blueberry plants, although irrigation in October has proven beneficial in extremely dry years. Do not let plants become stressed for moisture at this time, but don't over-water either. Plants need to be "weaned" from water by late October in order to allow plants to properly "winterize".

**Weed Control:** Late summer is also a good time to control many weed problems in blueberry fields. Perennial weeds, such as Johnsongrass, bermuda grass, bindweed, etc. can be easily identified at this time and removed with herbicides, shallow cultivation, or hand weeding. Woody materials and

## From the Editors

by Marilyn Odneal

We are happy to see that the weather has cooled off a little bit this early August. July was hot and dry at Mountain Grove (we hit 100F), much the same as the rest of the state. Rex Whipple's article stresses the importance of irrigation during dry periods and Ben Fuqua's article reminds us that plants need water even after harvest. Some blueberry growers can remember a dry fall that greatly affected fruit set for the following year. The growers who irrigated enough to take care of the plants but not so much as to delay winter hardening were rewarded with a good crop of blueberries in the next, otherwise lean, year.

As always, if you have an article or topic you would like to see in this newsletter, please direct suggestions to:

Marilyn Odneal, SMSU Research Campus, 9740 Red Spring Road, Mountain Grove, MO 65711, phone: 417-926-4105, fax: 417-926-6646, e-mail: mbo774t@mail.smsu.edu or check out our website at <http://mtngrv.smsu.edu>

other large weeds should be rogued or cut below the soil surface to remove as many of the roots as possible. Other broadleaf weeds and grasses should be eradicated, both within the plant row and between rows, to reduce the number of weed seeds that can germinate next year.

**Fertilizers:** Most fertilizers should have already been applied by this time of the year. Dry, solid fertilizers that contain nitrogen should not be applied after mid-August; liquid nitrogen fertilizers should not be applied later than September 1. Foliar applications of micronutrients, especially iron and boron, can still be safely applied if needed. Iron deficiencies in blueberries are common during the fall months and can be identified by chlorosis (yellowing) of the youngest leaves. One or two applications of iron chelate (spaced 10 to 14 days apart) will help keep the plant green and healthy during formation of new fruit buds. Researchers have found that one or two fall applications of a 250 ppm boron spray increased the number of berries per plant and increased total blueberry yields. A reduction in tip die-back the following spring was also noticed in the plants treated with boron.

**Soil/Leaf Analyses:** Mid-July to mid-August is the best time to collect blueberry leaves for a foliar analysis. Nutritional concentrations in blueberries are more stable at this time of the year, thus resulting in more accurate measurements of the nutrient levels within the leaf. Each foliar sample should consist of 75 to 100 leaves, randomly collected from several (25+) blueberry plants. Fully-expanded leaves from the current season's growth should be collected and air dried before sending to the laboratory for analyses. Separate samples need to be collected from different cultivars and from plants that show abnormal or unusual growth characteristics.

Soil samples can also be taken at this time. Soil samples should be taken between individual plants within the row. Several subsamples need to be randomly collected from the planting, mixed in a clean container, and approximately 1 pound (1 pint) sent to the testing laboratory. Soil samples should be taken from beneath the mulch, beginning at the soil surface and extending to a depth of 4 to 6 inches.

The UMC Soil and Plant Testing Laboratory, coordinated through University Extension, as well as several private laboratories are available to analyze soil and leaf samples. While costs vary from one laboratory to another, foliar analyses generally cost from \$15 to \$30; soil samples from \$10 to \$20 per sample. Although these tests add to the overall production costs of growing blueberries, they are the best tools available for developing and maintaining a sound plant nutritional system. Collecting both soil and leaf samples at the same time each year (after berry harvest) allows growers to compare nutrient levels from one year to the next, which helps in "fine tuning" the overall fertility program.

**Summary:** Growing blueberries is a year-round job. Late summer/early fall are as important to next season's berry crop as pruning, mulching and other spring tasks. While everyone else is talking about the new millennium and all the potential computer problems, blueberry growers should already be preparing for Y2K.

## Blueberry Council News

by Bob Hershey

Blueberries have never had as much publicity as they have this year. National publications with articles on the health aspects of blueberries included *Health* magazine, *Prevention* magazine, *Organic Gardening* and the *USA Today* newspaper. We as growers can use all this publicity to our advantage. Promote the health aspects of blueberries in your farm flyers, recipe handouts, and farm ads. Blueberries are the richest source of anthocyanins, natural colorants that act as very effective antioxidants (substances that protect our bodies from cardiovascular disease, cancer, and other degenerative diseases). Blueberries are also a good source of vitamins A and C, along with potassium, calcium, and folate (a B vitamin).

This year the Blueberry Council placed an ad listing all producing members in the *Rural Missouri* publication. This statewide ad which appeared in the June issue is one of the most cost effective ways of reaching as many people as possible with the Council's limited budget.

We were contacted by several newspapers this year, and I hope that many of you felt the benefits from the free publicity. Jessica DeHaven with the *News Press*, did a feature about blueberries and u-pick farms. Hopefully those of you in the Kansas City area and the northwestern part of the state received new customers.

Our biggest surprise was the June-July issue of *Missouri Life* magazine. When the editor, Danita Wood, contacted me about using the Blueberry Trails in an article, I has no idea she would give us the coverage she did. The article entitled "Blueberry Bonanza" listed the producing Blueberry Council member farms, had a good picture of Earnie Bohner in his patch, and was an excellent, well-thought-out article. We thank the editor and publisher of *Missouri Life* for a beautiful article and for a great service to our growers.

We urge every Blueberry Council member to send a thank you note or a blueberry treat to Mrs. Wood (Danita Wood, Editor, *Missouri Life*, 1540 County Rd. 421, Fayette, MO 65248). For a one-year subscription send \$19.95 to: *Missouri Life*, P. O. Box 28830, St. Louis, MO 63123 or call 1-800-916-6624.

## Small Fruit Grower Association News

by Rex Whipple

Well, we are in the middle of the summer season. Hope your spring crops did well. We have had a very hot and dry July. As a result, our summer crops have had a lot of stress and the yield is down. We have closed our blackberry patch for the season because the fruit is drying up before they are ripe. Fall crop growth has also slowed down due to the lack of rain. Crops that can be irrigated are doing well.

We just received some information from Nourse Nurseries about a new raspberry cultivar that might be interesting to us in Missouri. You might want to contact them.

We have found that gooseberries are a great value added crop. They are easy to grow and come in about the middle of strawberry season. We pre-

pick them in quart containers and display them at the cash register. We sell all we can grow for \$3.00/pound. We weigh our quarts to 1 ¼ pounds.

We now have available a limited quantity of small wooden crates suitable for packaging jams, honey, etc. They make very attractive gift boxes for your value added items. You may call Ginny or Rex at (573) 627-3717 for prices.

Don't forget to pay your dues for 1999. Send your checks for \$25 to: Whip Haven Farm, 9335 Little Bourbeuse Road, Sullivan, MO 63080.

Please drop us a line and let us know what you are doing that is successful so that we can pass it on. We love to hear from you!

## The Corn Earworm: A Serious Pest in Sweet Corn

by Gaylord Moore

The corn earworm presents more problems with quality of sweet corn than any other pest. For the home gardener, small amounts of corn earworm damage may be tolerated. However, commercial operators who experience damage find marketing a major problem and future concern. Often the corn earworm problem is related to the selection and timing of pesticide application. Populations may vary each year plus the time of arrival of the adult moth from the south to Missouri depends upon factors such as maturity and wind currents.

Commercial and home producers may use pheromone traps to monitor the arrival of the moth and corn earworm moth populations. Sprays should begin when ears begin to silk and when pheromone traps show need. The threshold is more than 5 moths per night in the pheromone trap when green silks are present.

Again, timing of application is critical. Once green silks emerge, the corn ear is susceptible and protection must be applied. Good mist coverage is essential. Spray applications should be made every 2-3 days apart until 90 percent of the silks turn brown.

Materials labeled for corn earworm control are Warrior 1EC (1 day PHI), Baythroid 2E (0 day PHI), Ambush or Pounce (1 day PHI), Asana XL (1 day PHI), or Sevin XLR (2 day PHI).

There are numerous pheromone trap sources for corn earworm. If you are interested, please give me a call and I will provide a listing. It may be too late for this year, but it is not too early to plan for next if better corn earworm control is desired. I have made a deal in my home garden with the corn earworm. We have agreed that the worm can have the first inch of the ear, but the remainder is mine. I am content to cut the worm damage away from the tip of the ear instead of spraying. So far, so good, but I know this agreement is not reality every year. However, it has been my experience that the earlier I can expect my corn to mature, say close to July 4<sup>th</sup>, the less damage from the worm. Not always the rule, but the concept often works.

## **Blond Drupelet of Blackberry** *by Patrick Byers*

Blackberry growers are reporting an unusual amount of blond drupelet in 1999. The signs of blond drupelet include pale yellow or white drupelets among otherwise dark colored fruit. The affected area may range from only one drupelet to half or more of the berry. Blond drupelet is usually noted as harvest draws near.

Blond drupelet is a physiological disorder with several possible causes. Stinkbug damage is often associated with blond drupelet. Several species of this insect are common in Missouri. Stinkbugs are triangular in shape, may reach ½ inch in length, and vary in color from green to gray. An easy way to identify stinkbugs is by the odor that the insect produces – they stink! Stinkbugs feed by inserting a needle-like mouthpart into the fruit and withdrawing plant juices. The insect may then regurgitate saliva back into the fruit. Feeding may take place anytime that fruit are present on the plant. If the stinkbug feeds on a developing green fruit, the regurgitated saliva can disrupt the normal development of dark

pigments, leading to pale drupelets in an otherwise dark fruit. Stinkbug management includes removal of weedy areas adjacent to the planting, which provide cover for stinkbugs. While insecticides are effective against stinkbug, few if any are labeled for control of this pest on blackberry. The level of damage usually doesn't warrant an insecticide application, and many Missouri blackberry growers do not commonly apply insecticides to developing blackberry fruit.

Another factor implicated in blond drupelet is the environment. Warm temperatures and high light intensity can cause a bleaching of blackberry fruit. This discoloration is often accompanied by a softening of the fruit. A common situation is to notice blond drupelet on exposed fruit, while the fruit beneath the foliage is normal. Water stress can compound the blond drupelet problem, so be sure to supply sufficient water during warm periods. Other management techniques, such as placing shade cloth over the plants, are usually not cost effective.

Several other factors, such as free water on the ripening fruit for extended periods of time and the fungal disease anthracnose, may play a role in blond drupelet. The unusual amount of blond drupelet experienced this season, however, is probably related to a combination of stinkbug damage and high temperatures with drought.

## **Missouri Small Fruit Conference Date Set**

Please mark your calendars for the Y2K Missouri Small Fruit Conference. The dates are February 21, 22 and 23. Keep posted on program dates by visiting our website at <http://mtngrv.smsu.edu> and click on the news and events button. We will have the most current information on the web.

## Genetically Altered Corn May Harm Butterflies

*This article is reprinted for general interest from the Springfield News-Leader, Thursday, May 20 (Associated Press).*

Scientists have discovered a disturbing, unintended consequence of genetic engineering. Pollen from a widely planted, laboratory-designed strain of corn can kill monarch butterflies.

Monarch caterpillars eating milkweed leaves dusted with pollen from the altered corn plants ate less, grew more slowly and died more quickly. After four days, 44 percent of them had died vs. none of the caterpillars that didn't feed on the pollen.

Monarchs are not an endangered species. But environmentalists fear that if the genetically engineered corn is killing the orange-and-black butterflies, it may be doing other unseen damage to the food chain.

The strain is called Bt corn and is manufactured by agricultural giants Novartis AG, Pioneer Hi-Bred International Inc., and Monsanto Co. The corn is genetically engineered to produce a natural pesticide that kills the corn destroying European corn borer.

It was approved by the Food and Drug Administration and hit the market in 1996. It accounted for more than 25 percent of the 80 million acres of corn planted in the U. S. in 1998.

Bt corn has been touted by the industry as a way to fight a major pest without using chemicals.

The study was led by Cornell University entomologist John Losey and published in today's issue of the journal Nature.

"It's very disturbing," said Jeremy Rifkin, whose Washington based Foundation on Economic Trends is pushing for a moratorium on genetically engineered crops until their environmental effects can be more thoroughly studied. "It's a smoking gun. This now is a red flag everyone is going to have to look at."

Losey, however, said that while he thinks the crop's harm to other insects deserves more research, studies have shown that the corn does not

harm humans or other mammals. He added: "I still think the proven benefits of Bt corn outweigh the potential risks."

Monsanto spokesman Randy Krotz said the finding is not very important. Many monarch butterflies would not be exposed to the toxic pollen, he said, since milkweed does not grow near corn fields.

And Val Giddings, vice president for the Biotechnology Industry Organization, said: "Whatever the threat to monarch butterflies that is posed by Bt corn pollen, we know it's less than the threat of drifting pesticide sprays.

Industry officials said they were not surprised by the finding because the larvae of monarch butterflies are similar to the corn borer. They also called the study sloppy because the researchers didn't precisely measure the amount of pollen ladled onto the milkweed leaves.

For 20 years, biotech laboratories have been altering the genetics of vegetables to make them taste better or resist pests, raising fears of "Frankenstein foods".

This is not the first time scientists found possible unintended consequences of genetic engineering.

A Swiss study last year showed an indirect effect of Bt corn on the food chain. Insects called lacewings died more quickly if they fed on corn borers reared on Bt corn.

A University of Chicago study found that a weed altered by scientists to resist a herbicide developed a far greater ability to pollinate other plants and pass on its traits. The findings raised fears that genetic engineering could lead to the rise of "superweeds" impervious to weedkillers.

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**Your editors of The Berry Basket:**

**Gaylord Moore**, Area Horticulture Specialist,  
University Extension, Springfield, Missouri.



**Patrick Byers**, Fruit Grower Advisor, and  
**Marilyn Odneal**, Research Associate, Dept. of  
Fruit Science, State Fruit Experiment Station,  
SMSU, Mountain Grove, Missouri.



Send address changes and comments to:  
Dept. of Fruit Science, SMSU Research Campus,  
Mtn. Grove, MO 65711 or [mbo774t@mail.smsu.edu](mailto:mbo774t@mail.smsu.edu).

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