

# The Berry Basket

Newsletter for Missouri Small Fruit and Vegetable Growers

Volume 1 Number 1

Spring 1998

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## Soil pH - Easy to Change; Difficult to Stabilize

by Ben Fuqua

Providing the proper amount and balance of plant nutrients is one of the most critical factors in growing healthy, high yielding plants. The pH of the soil affects the availability of nearly all the 17 essential nutrients required by plants for vegetative and reproductive growth. If the soil pH is not within the correct range for a particular plant, nutrient deficiencies generally occur. This causes poor growth, low yields and may result in death of the plant.

pH measures soil acidity (more specifically hydrogen ions) in the soil solution and generally varies in soils from about 3.5 to 10.5 (PH 7 being neutral). While most agronomic and horticultural crops grow best in slightly acid soils (pH 6.0-7.0). some plants such as blueberries, azaleas, and rhododendrons prefer a more acidic soil (PH 4.8-5.2). Since the pH is actually a logarithmic mathematical function, a soil with a pH of 6.0 contains 10 times more acid than the same soil at pH 7.0; a soil pH of 5.0 is 100 times more acid than 7.0; and a soil with a 4.0 pH is 1000 times more acidic. Although a change of 1 pH unit doesn't seem like very much, it makes a huge difference in the amount of acidity in the soil and thus the amount of nutrients available for plant uptake.

The soil pH needed to insure maximum nutrient availability to plants varies from one element to another. For example, the availability of nitrogen, potassium, and sulfur is greatest at

## From the Editors

by Marilyn Odneal

Welcome to The Berry Basket. This newsletter is the result of the combination of *News from the Berry Patch* and *The Blueberry Times*. We believe by publishing a combined newsletter, we will more efficiently and effectively serve our growers. News columns for the Missouri Small Fruit Growers' Association and the Blueberry Council of Missouri will be featured in each issue. The Missouri Cooperative Extension Service and Southwest Missouri State University sponsor this newsletter. Please let us know if there are any features you are particularly interested in or if you have any suggestions for regular columns. Please direct your suggestions to:

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pH of 5.5 and above. At soil pH's less than 5.5 the availability of these nutrients for plant root uptake is greatly decreased. The availability of calcium and magnesium also decreases rather rapidly when the soil pH gets below 6.0. The availability of phosphorus for plants is maximized at a soil pH between 6.0 and 7.0. Soils with pH's on either side of this range will have reduced levels of available phosphorus. On the other hand, the availability of many micronutrients is actually greater in acid soils. Iron, manganese, zinc, copper and cobalt are more available at a pH of 4.0 than at a pH of 6.5. While this may be of benefit to plants with a high requirement for these nutrients, the higher levels often cause toxicity problems in other plants. The key to success is to balance soil pH with the nutrients needed by the plant being grown. All soils do not need to be adjusted to pH 7.0. The proper soil pH depends on what plant is being grown!

The soil pH is one of the more easily changed chemical components of soils. The pH can be increased by adding limestones, lime compounds, base-forming fertilizers or other basic materials such as composts or animal manures. Acidifying materials, such as sulfur, iron and aluminum sulfate, nitrogen fertilizers and acid organic compounds will lower the pH when added to soils. The quantity of acidifying or liming materials needed for a given pH change is determined by the buffering capacity of the individual soil. Soils with a high buffering capacity have a high cation exchange capacity (CEC). Thus, soils having a high CEC require more material(s) to change the soil pH by 1.0 unit, ie., from 5.2 to 6.2 or from 5.2 to 4.2 than a soil with a low CEC. Coarse-textured (sandy) soils have a relatively low CEC and would require smaller quantities of these material(s) to attain this 1.0 change in pH than a soil with higher clay or organic matter contents and a higher CEC. The low CEC soils will, however, require more frequent applications of the compounds as these soils don't have the storage "capacity" of the higher CEC soils.

Limestones, lime and acidifying materials that are finely divided, highly water-soluble or have a high purity react quickly when applied to soils and will give a rapid change in the soil pH. A rapid change may be necessary in some cases but a slow, steady increase (or decrease) in soil pH is usually more desirable. This is particularly true if plant roots or microbes are present, as an abrupt change can drastically affect their activities. A change that occurs over a period of 3 to 6 months usually alleviates most problems associated with a rapid change in soil pH.

The easy part in making nutrients more available to plants is changing the soil pH; the difficult part is keeping the soil in the optimum pH range for the plant you are trying to grow. The pH of soil constantly changes. Nutrient taken up by plant roots, additions of fertilizer, limestone, acidifying materials or organic matter, changes in soil moisture or temperature conditions and increased microbial activity all cause fluctuations in the soil pH. Minor pH changes are usually not a big problem (in fact they are impossible to prevent). The big challenge comes in trying to stabilize the changes that tend to accumulate over a period of years. To combat this problem in fruit crops, the soil pH should be monitored each year. While taking additional soil tests increases production costs, the increase in yields, improved fruit quality and improved plant growth will more than pay the added expense.

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**For Sale:**

TEC MA-205 cash register \$75.00  
 TEC MA-133 cash register \$115.00  
 Both work, good condition. Used last season.  
 Platform scales. State Certified 1997. Asking \$170.00. Good for pumpkins or as farm scales.  
 Good conversation piece. U.S. Standard, American Scale Co., Weighs up to 500 lb.  
 Call (573) 547-4502 or 547-4888.  
 Highland Blueberry Farm, Perryville, MO

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## Missouri Small Fruit Growers' Association Formed

*by Rex Whipple*

During the recent Small Fruit Conference in February in Springfield the Missouri Small Fruit Growers' Association, a not-for-profit corporation registered in the state of Missouri, was formed. The purpose of this group is to share ideas among members, provide co-op purchasing, help with advertising of our products, and deal with other matters as they arise.

All small fruit growers who produce for retail or commercial sales are welcome to join this group as regular members with voting privileges.

All vendors or suppliers to growers may join this group as associate members, without voting privileges.

Other people or organizations as nominated by a regular member and approved by the Board of Directors may become honorary members.

The membership nominated and elected the following officers:

**President: Wayne Simpson,**

Mountain Grove, Missouri

This farm started planting grapes in 1969 and had 12 acres by 1975. They now have 15 acres of Catawba grapes and sell to Stone Hill Winery in Hermann, Missouri. They also grow 5 acres of strawberries, 99% of which are U-Pick.

**Vice President: Rex Whipple,**

Sullivan, Missouri

**Secretary/Treasurer: Ginny Whipple,**

Sullivan Missouri

Whip-Haven Farm was started in 1990 as a way to escape the big city. The farm maintains and grows 4 acres of strawberries, 1 acre of thornless blackberries, 4 – 6 acres of pumpkins, some rhubarb, gooseberries, and approximately 2,000 hardy mums. The farm has a store and produces honey and jams under the farm's own label. Eighty percent of the crops are sold U-Pick.

**Region I Director: Floyd Livingston,**

Poplar Bluff, Missouri

Livingston Farms started 10 years ago and specializes in strawberries, blueberries, blackberries, and raspberries for the commercial and retail market. They have a nursery business offering planting stock for strawberries, blueberries, blackberries, raspberries, asparagus and rhubarb. Their market is mostly pre-pick and they use migrant labor.

**Region II Director: Arden Compton,**

Buffalo, Missouri

Compton Family Farm was started in 1996 with ½ acre of pumpkins, sweet corn and tomatoes.

This year they will have over 3 acres in production, with strawberries, raspberries and blackberries. They are doing some experimental growing under a grant from S.A.R.E. and the University of Missouri Department of Agriculture. A greenhouse is in the planning stage. They have a U-Pick and pre-pick market.

**Region III Director: Phyllis Spencer,**

Spickard, Missouri

Phyllis and her family own Willis-Elliot Orchard which was settled by her great grandfather over 100 years ago. They have 2,000 apple trees and 300 peach trees. They also cultivate ½ acre of brambles. A state approved kitchen was built several years ago for production of jams and jellies. They retail most of these products at their outdoor market.

All growers are urged to join and support our association. Dues are \$25.00 per year and all growers who join this year, 1998, will be designated "Charter Members" and receive a certificate suitable for display at your farm facility. Please fill out the membership form (on page 7 of the newsletter) and mail to: Ginny Whipple, Whip-Haven Farm, 9335 Little Bourbeuse Road, Sullivan, Missouri 63080, (573) 627-3717. Make your check of \$25.00 payable to MSFGA.

## Blueberry Council News

by *Bob Hershey*

Hear Ye! Hear Ye! Call for Membership! I am asking all blueberry growers to join the Blueberry Council of Missouri. A major purpose of the council is to provide service to growers like you folks. We might be one of the smallest grower organizations, but we sure are active.

Benefits of joining the council are many. I'll mention some of the things we do to promote blueberries in Missouri and aid growers.

- We advertise farm locations by use of the Blueberry Trails pamphlets.
- We advertise in state-wide publications, such as the Rural Missouri Magazine.
- Members serve blueberry sauce at the Missouri Governor's Conference on Agriculture in December. This generates a lot of interest each year.
- Growers serve blueberry desserts on the Night with Missouri Agriculture to Missouri legislators in attendance. This is a great opportunity to meet with our government officials and voice the concerns of small growers.
- As a group we are able to purchase picking bags in large lots. This saves growers money. This program could be extended to other items as well.
- As a commodity group, we can apply for AgriMissouri funds for advertising.
- For grower benefit, our council is actively promoting a limited liability law for U-Pick farms. If passed by the legislature, this would greatly reduce your liability insurance costs, and lessen the risk of allowing consumers on your farm.

The Blueberry Council also gives support to the Southwest Missouri State University Departments of Agriculture and Fruit Science through council donations. These donations help fund blueberry research for Missouri growers and other projects in these departments.

Dues are very reasonable; just \$35 per year for a grower in production, and \$15 a year for non-production members.

There are about 200 acres of blueberries growing in Missouri according to the Department of Agriculture. We extend a membership call to all growers to join the Blueberry Council of Missouri.

## Know Your Pests When Growing Pumpkins and Squash!

by *Gaylord Moore*

Gardeners and market growers who have extra room may consider growing pumpkins or squash. These crops generally are not the most difficult to grow, but can be frustrating if you don't obtain optimum yields. Pumpkins are fun for the family to grow. They offer kids a great experience watching the magnificent vines grow and produce fruit from the smallest of varieties like Jack-be-Little or Baby Bear to the giants such as Atlantic Giant, Big Max, or Prizewinner. 'The public demand for pumpkins has increased in the past few years, offering greater opportunity for cash income for local outlets. Although families may not have enough time or growing space to produce their own pumpkins, they can always visit the local pumpkin patch. Squash production is similar to pumpkin production and, unless otherwise noted, squash requires the same attention.

Several insect pests are of concern for the pumpkin or squash grower, however, the two most important are the striped cucumber beetle and the squash bug.

The cucumber beetle causes feeding damage and may transmit viral and bacterial diseases. Bacterial wilt, for instance, is a disease that is often the result of early feeding by the beetle. The disease is often not evident until the vines begin to mature and the fruit begins to size. There is no cure for this disease, only prevention.

Good beetle control is necessary to avoid wilt diseases. There is no registered systemic insecticide to use at planting time, so close monitoring of plants for beetles is a must. Early season spray treatments are initiated when beetles first appear. Additional treatments are warranted as long as beetles are present and plants are susceptible to injury. Products labeled for cucumber beetle are Sevin, Thiodan, Asana, malathion, methoxychlor, Ambush, Pounce, pyrethrins, and rotenone. Asana, Ambush, and Pounce are restricted use pesticides and require a current pesticide license for purchase.

Unlike the cucumber beetle which is generally a problem on seedling plants, the squash bug is generally a problem on well-established plants. High squash bug populations can literally drain plants causing them to wilt and die. Effective control of squash bugs depends on timely insecticide applications and excellent coverage. Scout your plants for egg masses on the undersides of leaves. Treat when most eggs have hatched and when nymphs are still small to medium in size. The same insecticides suggested for cucumber beetle are recommended for squash bugs. Remember, scouting is essential. Spray BEFORE the problem is out of hand.

Powdery mildew is the most common pumpkin disease in Missouri and is most damaging if it appears 3 to 4 weeks before harvest. Evidence of powdery mildew is white, "powdery" spots or blotches on the lower and upper side of the leaf surface. Eventually, the whole plant may become covered with the white, dusty spores of the fungus. Diseased leaves prematurely turn yellow and die. For effective control, the first fungicide application must be made in late July or early August, before the symptoms appear. Make a second fungicide application in mid-August. Fungicides suggested for most pumpkin or squash diseases are Benlate, Bravo, Ridomil/Bravo, or Topsin.

Weed control is the most critical management practice for growing pumpkins. The vining habit makes cultivation difficult later in the season.

The use of herbicides and mechanical cultivation, combined, give the best weed control. A disc or field cultivator can be used to till row middles until vines cover the area. Pre-emergent herbicides labeled for pumpkins are Prefar 4E and Command 4E. Curbit 3EC may also be used. Closely follow label recommendations when using herbicides. Pumpkins are super-sensitive to improper herbicide applications, so be sure your equipment is calibrated properly!

These guidelines for pest control are an important part of a successful production plan. For other specific information on growing pumpkins or squash, you may contact my office at 833 Booneville, Springfield, MO 65802 or phone 417-862-9284.

## **Mulch Machine**

*by Bob Hershey*

Our old silage wagon served us well until the blueberry plants got big and the wagon became a maintenance nightmare.

We purchased a Millcreek Row Mulcher this year. Time or actually lack of time to hand mulch was our main consideration in purchasing this machine.

The machine proved to be well-built and adjustable as to rate of application and width of spread. I applied 9 tractor trailer loads of chips and sawdust on a little over 2 acres of blueberries. Nine loads equals 180 tons or 297 cubic yards of material. I completed our patch in two days with this machine. I pulled the machine with a small 25 HP compact tractor, and loaded with our farm tractor.

I believe we can justify the cost of this machine over an extended period. As with any farm machinery, keeping them clean, oiled and in a dry shed is the secret to longevity. This type of machine might be one several small growers would want to co-op own. As a construction equipment salesman, I caution you to have a written co-op or rental agreement before any problems arise out of a joint venture.

Is this something the Blueberry Council of Missouri would want to consider in the future?

If any grower would like to see the machine or have questions for me, I'm easily reached at (573) 547-4448 between 7 p.m. to 9 p.m. or by chance on the weekend.

For pricing and literature, write or call Joe at Millcreek Manufacturing Company, 2617 Stumptown Rd., Bird-in-Hand, PA 17505, (717) 656-3050.

#### **Blueberry Council Members Note:**

There are 20 cases of picking bags available to members, at \$55.00 per box of 1,000, which includes UPS delivery. If interested, contact Ronnie Hershey at 2607 PCR 616, Perryville, MO 63775 or include the costs for bags with your membership check.

## **Weed Management in Newly Planted Strawberries Without Dacthal**

***Dr. A. R. Bonanno***

*University of Massachusetts*

*Reprinted from the Small Fruit News of Central New York, May 1, 1998*

As you probably have already heard, Dacthal (DCPA) herbicide will no longer be manufactured. ISK Biosciences has indicated that the capital requirements necessary to continue to meet regulatory mandates prompted the decision. The current inventories of Dacthal are expected to supply the market for 18 months, although prices have already risen. The company intends to keep all uses registered until the supply is exhausted. The one critical use in small fruit is for newly planted strawberries. Because of this loss, growers should consider the following:

Use current supplies of Dacthal only on newly planted strawberries. For uses at renovation, late summer, or prior to mulching, use Devrinol

(napropamide). The maximum use rate of Devrinol is 8 lb of the 50 DF per acre per year (4 lb active ingredient per acre). Growers may want to try the stale bed technique prior to planting. Prepare the land for transplanting at least 2 to 3 weeks prior to planting. If soil temperatures are reasonably warm and if adequate moisture is present, weed seedlings will emerge. Prior to transplanting, use Roundup, Gramoxone Extra, or flaming to burn back emerged weeds. Transplant the strawberry plants with a minimal amount of soil mixing. Subsequent flush of weeds should be reduced.

Be prepared to lightly cultivate the field during the first 6 weeks of growth. Keep cultivation shallow to minimize movement of deeper weed seeds to the soil surface. Devrinol 50DF at 4 lb acre is usually recommended 6 weeks after transplanting. The soil must be free of weeds prior to applying Devrinol as it will not control emerged weeds.

Fumigation is still an option for growers. While fumigation with Vapam in the fall or methyl bromide in the spring does not eliminate all weeds from a field, it does usually provide excellent control of most weeds for several weeks after transplanting. Fumigation is expensive, however, and growers who do not need to fumigate for disease control should consider stale beds or cultivation first.

## **That Which We Call a Rose** *by Patrick Byers*

"The Berry Basket" is the result of several lunch meetings and lots of argument. The editors thought you might be interested in some of the names that didn't make the final cut. Here goes.. Laszlo Kovacs, Patrick Byers, Pamela Mayer, Gaylord Moore, Tera Bonney and Marilyn Odneal chose from among "The Berry Basket", "The Garden Nut", "The Plot", "Fertile Readings", "The Lush Rush", "Deciduous Decisions", "The Berry Best and Veggies Too", and "Thought for Fruit". Did we choose the right name?