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Wait Till Next Year

By Ben Fuqua
Professor, Soil Science
Missouri State University

Missouri growers are known for producing high yields of quality blueberries. After a year of buying “imported” fresh blueberries from other states, consumers should be ready for “Missouri Grown” blueberries in 2008. Two characteristics that consumers highly rate when selecting blueberries to purchase, berry size and taste (sweetness), are largely a reflection of the blueberry variety (cultivar) selected and the cultural practices being employed.

Berry size: While berry size has little (if anything) to do with berry flavor, color, or quality, it is the one item that attracts the most attention from consumers. Large blueberries are an “eye-catcher” and can be eaten as a fresh, healthy snack, used to create beautiful “blue-colored” fruit bowls, or processed into pies, cakes, jams, etc. U-pickers like to harvest large berries, probably because they are easier to pick, thus requiring less time to fill their buckets (allowing them to harvest more blueberries!) On the other hand, smaller berries are just as attractive and tasty as the larger ones and can also be used in the same delicious treats. In fact, many cooks prefer the smaller berries in muffins, cakes, syrups, and many other processed foods.

Berry size is affected by a combination of factors; some genetic and some cultural. Plant genetics obviously play a major role in the size

From the Editors

by Marilyn Odneal, Managing Editor

Hope you all are enjoying our beautiful fall weather. The Easter freeze and August heat are just faint memories now. Anticipation of better days to come seems to be the theme of this issue, from blueberries to lasagna. Gaylord is anticipating a restful retirement nodding off on the bank with fishing pole in hand. The Berry Basket staff will miss him very much and wish him many happy, healthy and wonderful years to come.

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of berry the variety can produce. For example, the Jersey, Northland, and Reka varieties tested at Mountain Grove and/or Springfield consistently produced smaller berries (300-454 berries per pound), while Nui and Chandler produced very large berries that weighed over 2.5 grams each (150-180 berries per pound). Other blueberry varieties recommended to Missouri growers, including Duke and Elliott (early maturing), Berkley, Blueray, Bluecrop, Brigitta Blue, Legacy, Ozark Blue and Reka (midseason ripening), and late-maturing varieties Coville, Darrow, Elliott, Lateblue, and Nelson produced medium-to large-sized berries. Berry size varies throughout the harvest season, with berries from all varieties being larger during the first 7-10 days of harvest and then steadily decreasing in subsequent weeks.

Blueberry plants need a great deal of water to maintain plant turgor and other metabolic functions while producing high yields of quality fruit. While adequate water must be provided throughout the year, particular attention should be taken during berry formation/development through fruit ripening. Excessive amounts of soil water, however, are just as harmful to blueberry plants as moisture deficiencies and should be avoided. Other cultural practices that affect soil moisture, such as mulching and weed control, improves water relations around plant roots and are essential to good water management.

Pruning is the cultural practice that probably exerts the greatest influence on berry size and ripening of the fruit. Annual pruning is recommended to remove older, damaged or diseased canes and twiggy growth and to allow more energy to be directed toward berry development and fruit ripening. Unpruned blueberry plants tend to produce a large number of very small berries while properly pruned plants produce fewer, but much larger berries. Even blueberry varieties that typically produce small berries (Jersey, Northland, and Reka) will produce larger than normal berries when properly pruned. The total yield of fruit may not differ much between unpruned and pruned

plants, but pruned plants will produce the larger-sized fruit.

Ripening: Blueberries tend to increase in size and sweetness as they ripen. As the berry turns to green to purple and finally to blue, the size of the berry increases by as much as 50%. Even after the berry turns blue, the berry can still increase an additional 20% in size. Sweetness (sugar content) also increases as the berries ripen, an added bonus to improved berry quality. Thus, allowing the blueberry to fully ripen on the bush results in both a larger and sweeter berry.

Summary: Consumers have come to appreciate (and expect) a delicious, sweet, high quality berry from Missouri blueberry growers. Missouri blueberry growers produce a quality product that is far superior to the “imports” found in grocery stores this past summer. Perhaps Missouri blueberry growers (and consumers) need to adopt a slogan often heard from the always optimistic sports fan after an especially bad season: “wait till next year”. After a “bad” blueberry season in 2007, look forward to a great (weathering permitting) berry year in 2008!



Garden Asters

By David Trinklein

Associate Professor Plant Sciences
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Few things are as depressing to the avid gardener as the end of the growing season and October tends to remind us of that annual inevitability. However, autumn is the time of year when some ornamental plants are just coming into their full glory and garden aster is one of those plants. Their petite, daisy-like flowers that are one to two inches in diameter and come in a wide array of vibrant colors including some of the truest blues to be found anywhere in the plant world. At a time when many gardeners are making one last trip of the growing season to the local nursery for hardy chrysanthemums, garden asters should be considered also. They share many of the same cultural requirements with mum making them an ideal companion plant in the garden.

Aster is actually a genus of plants containing 250 species. Garden aster, along with the likes of zinnia, marigold, dahlia, chrysanthemum and many, many other useful garden species, is a member of the *Asteraceae* (formerly *Compositae*) family. The word *Aster* is derived from a Greek word meaning “star” and refers to the star-like shape of the flower. Garden aster (as well as all members of the *Asteraceae* family) bears a compound flower known as a head consisting of disc florets that comprise the center or eye, and ray florets that radiate from the eye to form what most people erroneously refer to as the petals. Most garden asters belong to one of two different species: *Aster novi-belgii* (New York Aster) or *A. novae-angliae* (New England Aster); both are native to North America and hardy to zone 4. Important related species include *A. tongolensis* (East Indies Aster) and *A. lateriflorus* ‘Horizontalis’ (Calico Aster). Plant breeders have succeeded in improving the wild aster when selecting for compact plant habit and different flower colors. Garden aster often goes by the common name



Professor Kippenberg

of Michaelmas Daisy; the latter taken from the fact aster blooms around Michaelmas Day (or the feast of St. Michael the Archangel) which is observed on September 29th.

As previously mentioned, the culture of aster is very similar to that of chrysanthemum. Like chrysanthemum, aster is a short-day plant meaning that it requires a long, uninterrupted period of darkness in order to bloom. The long days of spring and early summer promote vegetative growth in aster; the shorter days of late summer trigger flowering to occur. Aster enjoys a full-sun exposure in a well-drained soil of average fertility. The addition of well-decomposed organic matter can help to loosen tight soils. Garden asters purchased in bloom growing in containers need only to be watered; those established in a perennial garden should be given only modest amounts of fertilizer during the growing season since excess fertility leads to tall, “floppy” plants. Garden asters are relatively insect-free but do suffer from several troublesome diseases including aster wilt (yellows) and powdery mildew. Several new cultivars have been developed that are more tolerant of mildew than some of the older, more familiar cultivars.

Unlike chrysanthemums, asters have a fairly upright growth habit and range in height from three to five feet in nature. Although plant breeders have succeeded in developing shorter cultivars (often through intra-genic hybridization), most aster cultivars that have

been overwintered as established plants in the garden need to be pinched as they grow in order to keep them compact and attractive. After emerging in the spring and achieving a height of about six to eight inches, plants should be pinched every two to three weeks until about July 25, the date on which flowering is triggered in most cultivars. Pinching also promotes axillary buds to develop which results in a fuller plant with a more attractive floral display.

The following represent some of the more popular cultivars of garden aster available in commerce today:

‘Alma Potschke’

Bright, rose-pink flowers on vigorous, 36-inch plants. Requires staking.

‘Celeste’

Striking, dark lavender-blue flowers with yellow centers.

Medium vigor, 24 inches tall.

‘Frida Ballard’

Medium-sized, deep raspberry flowers.

Medium vigor, 24 inches tall.

‘Patrica Ballard’

Large, double lavender-pink flowers.

Medium vigor, 36 inches tall.

‘Prof. Kippenberg’

Large, purple-blue flowers.

Compact growth; 15 inches tall.

‘Purple Dome’

Purple flowers profusely borne.

Forms 18-inch purple mound in bloom.

‘Winston Churchill’

Large, bright raspberry flowers with yellow centers.

Medium vigor, 24 inches tall.

Goodbye from Gaylord

By Gaylord Moore

Horticulture Specialist

University of Missouri

On October 26, 2007 I will be retiring from the University of Missouri Extension. After twenty nine years with Extension, I think it is time to step aside, rethink my situation and take another direction. I will have 36 years of service with the University of Missouri.

I started my horticulture career in May of 1970 on the Columbia campus as Research Specialist under Dr. Aubrey Hibbard, pomologist and Professor of Horticulture. Dr. Hibbard was a great wealth of knowledge in all phases of horticulture and was a fine gentleman and great mentor to me. I thoroughly enjoyed working with the fruit industry in Missouri and this will always be my first choice for horticulture crops. However over the years with Extension and working directly with the public, all horticulture related crops have entered into my life experiences.

My location in the SW Region and Springfield guided a large portion of my work toward urban horticulture. Public requests for horticulture assistance in this community is quite strong due to the extreme popularity of gardening. I have attempted to reach large audiences with my programs through the media such as television, radio and newspaper.

The Master Gardener program is quite active and popular in Springfield. I owe a lot of credit to John Lower, former horticulture specialist for SW Region who laid the ground work for the Master Gardener program in this area.

Due to the dedication and hard work of Master Gardeners, a number of projects and programs were started and continue to provide many benefits for Greene County. In addition, nine other strong independent Master Gardener programs are established in SW Missouri and are led by dedicated Extension agents from those counties.



Gaylord Moore 2007

I have been rewarded with a wonderful and fulfilled career. I don't know of any other job that I would have enjoyed better. I always say there has never been a day that I have not looked forward to going to work. Challenges with new programs, problems and wonderful people have always kept the job fresh and enjoyable.

People have been an important part of my life. My joy has been witnessing the success of people. No matter if it is helping to establishing a profitable 20 acre peach orchard or advising how to produce quality home grown tomatoes, job satisfaction comes from people who are successful. Hopefully, I have had a small part in their accomplishment.

What have I learned as an Extension worker?

- Don't be hesitant to say "I don't know". However, follow with "I will be happy to find the answer". If you do, be sure and follow through with your promise. In fact most folks are leery of people who claim to have all the correct answers.
- You don't have to know all the answers, but it is good to know where you can find them.
- All people deserve equal attention. Whatever the problem or question it is very important to that individual who has the concern.
- Be accessible to the people you serve. If they want to see or talk directly to you make certain you make yourself available.

- Extension work is not a 40 hour week job. It is a way of life and lifetime career.

In my 29 year career with Extension there have been changes in horticulture. Environmental issues and food safety are two of the largest concerns. Pesticide safety has been a major issue. Many pesticides have been removed from the shelves and replaced by others due to environmental concerns. Less effective pest control has often been the result. Integrated pest management, using all means at our disposal together to achieve effective and environmentally sound pest management, has been adopted.

Food safety issues are a concern with the public consumer. More people want to know where their food is coming from thus there is a greater demand for local produce such as roadside markets and farmer markets. I am seeing a resurgence of interest in personal backyard gardens and food preservation.

Organic gardening and production have been on the increase the past 20 years. Will that trend continue? It probably will due to food safety issues.

Pick-your-own operations were quite popular in the 70's. They seemed to fall out of favor in the 80's and 90's but may be coming back. However, I think there will always be a market for pre-picked produce.

Many strides in agricultural technology have taken place in big commercial agriculture. Due to computers, electronics and other automated devices aids in the field have come about. Precision agriculture is one term that identifies some of these technologies. On the other hand, agriculture and horticulture production can be as simple or as complex as you want to make it depending upon the size of operation and limited or unlimited resources.

Speaking of retirement I think it is time to sign off. It has been a good ride through the years. I have met many wonderful people and gained numerous friends. I certainly don't want that accomplishment to change.

Tough Lessons for Plasticulture Growers

By Jay Chism
Agronomy Specialist
University of Missouri

The Easter freeze this year was devastating to Missouri strawberry growers. Growers from several states gathered at the Arkansas Strawberry Growers Association meeting in Little Rock, Arkansas to learn what, if anything, could have been done to help against a freeze of this magnitude. Barclay Poling, small fruits specialist for the North Carolina Extension Service, indicated that growers need to be prepared to use row covers, as well as irrigation to protect berries from freezing.

North Carolina had approximately 80 percent of a strawberry crop, far better than the other fruit crops in that state and much better than plasticulture growers in Missouri, where only a 25 percent crop was harvested by growers.

North Carolina growers not only used multiple protection methods, but many producers had wisely invested in a digital thermometer attached to thermocouples that were attached to the tissue of strawberry plants. "It is important that growers learn to use freeze protection with precision. Thermometers that monitor the temperature in the blossoms help to do that," says Poling. "There is not a better payback in strawberry production. You are just guessing without a thermometer."

In plasticulture systems, row covers are used by growers to protect the crop in the winter and get the plants off to a good start the following spring. These covers are important if weather conditions delay fall planting and additional growth is necessary late in the year. It is important to monitor plant growth throughout the fall. Strawberry plants don't need to be any larger than a 6" diameter by mid December. With proper nutrition, these plants should be around 10-12" tall and produce 45-50 fruits/plant.

During a freeze event similar to the one we experienced last Easter, row covers can also be an important second line of defense. "Irrigation for frost protection is the first line of defense for North Carolina growers," Poling says.

In an interview in Farm Press, Jeremy Pattison, Virginia Extension small fruit specialist said, "The strawberry grower here who had the most success were those who used row covers in combination with irrigation."

Although the freeze of 2007 will go down in the record books, Missouri plasticulture strawberry producers need to heed the lessons learned from this cold event and take steps to improve freeze and frost protection to ensure consistent high yielding crops in years to come.

Mark your Calendar

The **Missouri Small Fruit and Vegetable Conference** will be February 18, 19, 20, 2008 at the Clarion Hotel in Springfield, Missouri. Watch our webpage for more information. <http://mtngrv.missouristate.edu/>

Results for Small Fruits

By Martin Kaps
Research Pomologist
Missouri State University

Strawberry Research: Variety trial concluded in 2006

A two year strawberry variety trial was started in 2004 and concluded in 2006. This was traditional matted-row culture of fifteen new and not-so-new varieties. For those not familiar with matted-row culture, dormant strawberry crowns are obtained from a nursery and spring planted. These crowns grow into mother plants which in-turn develop runners during the summer. Along the runners, daughter plants form to 'spread' the matted-row. Ideally the matted-row is about eighteen to twenty-four inches wide and extends the length of the row. The mother and daughter plants initiate flower buds in the shorter days

of fall. The planting is overwintered with straw mulch applied over-the-row. In the spring the mulch is raked to the walking aisles and plants bloom. About a month later, bright red fruit are there for the picking! Once harvest is over, the planting can be renovated by mowing-off the leaves and narrowing the plant row with a rototiller. The remaining plants regrow and send out new daughter plants for another year of production.

Our trial showed that a number of newer varieties from other countries yielded as well as the 'ole' standby from the U.S. named Allstar. Annapolis, Brunswick, Cabot, Evangeline, Mira, and Sable all from Nova Scotia, Canada did very well. If you are looking for large berry size, Cabot had the largest at 2/3rds ounce! Darselect from France, Eros from the UK, and a cold hardy variety from Minnesota named Mesabi yielded equally well as the Canadian varieties. Not to slight the U.S., two varieties from New York, Clancy and L'Amour, and one from North Carolina, Bish, were intermediate, and definitely worth trying! The trick to finding these new varieties is not to ask for them at your local 'big-box' store or local nurseries. The best bet is to contact a commercial strawberry nursery. Most will also sell to homeowners with a minimum purchase of twenty-five plants. Contact us at the Mountain Grove, Missouri State University, State Fruit Experiment Station for names of these nurseries.

Biofumigation of a strawberry matted-row site.

Bio-what? Okay let me explain. Many plants will decline in plant making and yielding ability when they are repeatedly planted on the same ground that they were grown before. Commercial strawberry growers often times do not have a choice but to replant the same ground to strawberries. A practice that was available to them in the past was to fumigate the ground with a pesticide that killed soil organisms and weeds. This practice is no longer available to growers with the trend in the U.S. to reduce or eliminate pesticides where possible. One approach we are trying is to use

plants themselves as a means of fumigating the ground. Certain plant species have biofumigant (bio = living as in plant) properties. Some brassica (Mustard family) plants have this characteristic. We are trying *Brassica napus*, rapeseed varieties, Wichita, Plainsman and Sumner as cover crops on previous strawberry ground. These crops were planted in late summer, grown in the fall season, overwintered, and incorporated the following early spring. Strawberry dormant crowns were planted a month later. A matted-row planting was established in 2007. The 'jury is still out' on this one as we are in the middle of this project. We will update you next spring when the strawberry plants are fruiting!

Blueberry Research:

Our plan is to establish a new small fruit research planting at Mountain Grove in 2008 or 09. It will have both a blueberry and blackberry component. Like most of our plantings it will be replicated four times, so we have confidence in our results and can publish the information in popular and professional journals. Our 'short lists' for blueberry and blackberry varieties follow. Several numbered selections from the Arkansas Blackberry Breeding Program at Clarksville will likely be included. We are also open to suggestions by individuals as to varieties to include:

Blueberry	Blackberry
Aurora	Erect Thorny
Bluecrop (standard)	Chickasaw
Bluegold	Kiowa
Chandler	Shawnee
Chippewa	Thornless
Draper	Apache
Duke	Arapaho
Hardyblue	Chester
Liberty	Navaho
Rubel	Ouachita
Cara's Choice	Triple Crown
Hanna's Choice	Primocane Fruiting
	Prime-Jan
	Prime-Jim

Lasagna Gardens

*By Marilyn Odneal
Horticulture Outreach Advisor
Missouri State University*

One of the features of the Fall Garden Workshop held on October 6 by the Tri-County Master Gardeners and the State Fruit Experiment Station was building a lasagna garden. Popularized by Patricia Lanza in her book “Lasagna Gardening”, these gardens are no-till and constructed of alternating layers of organic materials, like those used in the compost pile. A lasagna garden constructed in late summer or fall will break down over winter to yield a rich garden spot the following spring.

The steps are as follows:



Step 1. On your garden spot, lay down 2 - 3 layers of black and white newspaper and wet it down. You can put this directly over lawn that is still alive or weeds that are bent down. Water the paper so it stays in place and add a layer of sphagnum peat moss.

Lasagna gardens are one of the features in the Horticulture Garden at Mountain Grove. The Ozark Home Landscape is developed and maintained by the Tri-County Master Gardeners and the State Fruit Experiment Station and serves as a site of interest at workshops and field days.



Step 2. Patricia Lanza uses sphagnum peat moss every other layer, but we opted to use whatever organic matter we have on hand and not use as much peat moss. We did put a layer of peat moss right on top of the newspaper.



Step 3. Continue to add layers of organic matter and spread it out evenly. We used peat moss, sawdust, grass clippings, worm castings and alpaca manure for this bed.



Step 4. Once you reach at least 2 feet in height, you can relax and wait until next year for the bed to break down and welcome your spring transplants.

For more information about workshops, field days, and conferences held at the Missouri State Fruit Experiment Station in Mountain Grove, contact Pamela Mayer PMayer@missouristate.edu 417-547-7514.

You can also subscribe to our listserve at <http://mtngrv.missouristate.edu/Publications/HortAdvisory.htm>

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Grant Funding Program Seeks Innovative Ideas for the Farm and Ranch

The North Central Region Sustainable Agriculture Research and Education (NCR-SARE) Program is seeking innovative farmers or ranchers who want to implement a new, sustainable, idea to improve their operation. NCR-SARE is currently accepting applications for their 2007 Farmer Rancher grant program.

NCR-SARE awards grants to farmers and ranchers for on-farm research, demonstrations, and education projects. By providing funds ranging from \$6,000 per individual grant to up to \$18,000 for grants awarded to groups of three or more, NCR-SARE helps facilitate essential agricultural research and development.

Beverly Pender is an urban farmer in Kansas City. Utilizing the lots she owns, and the lots donated to her from neighbors, she has been able to carry on Soul and Soil Rainbow Gardens. Thanks to NCR-SARE grant funding, she will be able to add on to her gardens, and local youth, seniors, and the homeless will also reap rewards.

“Our objective is to promote urban farming and to teach the community about healthy food production,” Pender explained.

Pender’s grant is just one example of the wide range of projects that NCR-SARE has funded over the years. Other funded topics include pest and disease management, soil conservation, local marketing, public education, waste management, agri-tourism, crop diversity, aqua-culture, and many others.

NCR-SARE grants are awarded based on the applicants ability to describe how their project will be sustainable in terms of having long-term profitability, being good for the environment, producing healthy foods, being socially responsible and supporting their community.

Last year NCR-SARE funded 52 Farmer Rancher grants totaling \$400,037. This year farmers and ranchers throughout the North Central Region will once again have the opportunity to apply for roughly \$400,000 in grant assistance. The 12 states that comprise the North Central Region are Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. The NCR-SARE program receives its funding through the United States Department of Agriculture.

Grant proposals are due in the NCR-SARE office by December 3, 2007. Interested applicants may contact Debi Kelly, MO State SARE Co-coordinator, 573-882-1905, kellyd@missouri.edu or KB Paul, MO State SARE co-coordinator, 573-681- 5584, paulk@lincolnu.edu. The current Farmer Rancher Grant Call for Proposals application can be found on the NCR-SARE web site at <http://ncr.sare.org/prod.htm>. Previous project reports are made available through the national SARE web site at www.sare.org.

Remember: Subscribe or Unsubscribe to the Berry Basket at <http://mtngrv.missouristate.edu/newslet.htm> or contact Pamela Mayer PMayer@missouristate.edu 417-547-7514.

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