



## Perennial Canker on Stone Fruit Trees

by Michele Warmund

From February until early April, fruit trees grown in Missouri often become infected with a fungus (*Leucostoma cinctum*) that causes perennial canker. This fungus invades the bark during winter when temperatures are above freezing but stops when there is active tree growth in the spring. After infection, cankers with amber ooze become visible and can develop year-round (Figure 1). This pathogen is a secondary invader, requiring a wound for infection. Some of the common ways the pathogen enters trees is through wounds, such as bud scars or from twig lesions caused by brown rot, cracks in the bark from sunscald or Southwest injury, feeding sites from Oriental fruit moth, borers or rodents, and hail or mechanical injury. Once the tree is infected, spores are often found on the bark surface year-round. Young trees are most likely to succumb to perennial canker and may take three or more years to die.

Since wounds are often unavoidable on fruit trees, the best way to guard against spread of the disease is to select cold hardy cultivars for planting and maintain tree health with cultural practices. Careful attention to tree nutrition, especially preventing nitrogen and potassium deficiencies, will help keep trees healthy. Submitting leaf samples for foliar analysis from July 15 to August 1 will help determine the tree nutrient status and the amount of fertilizer needed to maintain productive fruit trees. Late winter pruning is also recommended to prevent premature deacclimation of trees. If possible, wait until just before buds begin to grow to prune. When pruning, avoid horizontal or flat cuts where water can collect and prolong infection periods. Also, prune healthy trees first and leave the infected ones until last to avoid spreading the disease. When pruning infected trees, disinfect the blades of the pruning tool between cuts. Household bleach (1 part bleach + 3 parts water), Pine-Sol cleaner (1 part cleaner + 3 parts water), or rubbing alcohol (1 part 70% isopropyl alcohol + 1 part water)

can be used as disinfectants. Remove prunings from the area as soon as possible as the fungus lives and grows on dead tissues and will spread under rainy or windy conditions.

During the growing season, avoid trunk wetting when watering fruit trees. Also, tree trunks can be painted with latex paint to prevent bark splitting, especially on the southwest side of the trees. Maintaining a weed-free area or cover crop at a low height during the growing season and in winter will also help reduce injury from rodent feeding. Wire tree guards

around the base of the tree trunks year-round or plastic wrap-around tree guards placed on the lowest portion of the trunk from November through March will also reduce rodent damage. Plastic guards should be removed in the spring to speed drying of trunks after precipitation and to avoid creating a protected habitat for insects.

Biological control of perennial canker with *Alternaria alternata*, *Trichoderma harzianum*, and *Epicoccum nigrum* has been tried experimentally. However, while these fungi were sometimes effective *Leucostoma* antagonists, none

reduced canker on peach trees. Poultices of brown mustard plants or mustard oil have also been evaluated as organic controls, but oil only protected peach trees for five months, and therefore these options may have limited practicality. When trees have small cankers (less than half the branch or trunk diameter) and dry weather is expected for at least three days, surgical removal may be feasible. During June, when rapid healing occurs, the dead bark tissue can be surgically removed, without penetrating the hardwood. Tissue must be removed at least two inches beyond the lesion, disinfecting blades between cuts. Wounds should not be treated or painted after surgery and diseased wood should be removed from the orchard or burned. Further details of surgical removal of cankers are available at: <http://extension.psu.edu/plants/gardening/fphg/stone/diseases/cytospora-canker-of-stone-fruits>.



Figure 1. Amber-colored ooze dripping from a perennial canker caused by an infection of *Leucostoma fungi* on a peach branch.

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# New Bedding Plants for 2017

by David Trinklein

Poring over newly-arrived seed catalogs is an excellent way to combat the “blahs” brought on by a dreary February day. There is nothing like the anticipation of the coming growing season to bolster morale. Each year brings with it an abundance of new choices for the garden—some probably better suited to our climate than others. Listed below are a number of new flower cultivars for 2017 that should perform well under Missouri conditions.

Angelonia ‘Archangel Cherry Red’ (*Angelonia angustifolia*). The ‘Archangel’ series of angelonia has huge flowers which are vibrant against its glossy, dark green foliage. ‘Cherry Red’ thrives in extreme heat, humidity and drought, yet keeps a delicate appearance in the garden. It is excellent as a landscape performer or mixed in larger containers as a “thriller”.

Begonia ‘Megawatt’ (*Begonia interspecific*). ‘Megawatt’ is easy-to-grow and powers through humidity and heat. It tolerates dry periods between watering, too. An outstanding performer, it flowers continuously from late-spring through fall. Plant it in large-size containers or in the landscape for fast-fill. Its striking flowers cover the plant, sitting above sturdy flower stems for superior show.

Begonia ‘Funky™ Pink’ (*Begonia hybrida*). Able to handle full sun in most climates, ‘Funky™ Pink’ is a breakthrough in tuberous begonia breeding. Its unique “shredded” double flowers provide outstanding color and texture in hanging baskets, patio pots, or even in garden beds. ‘Funky™ Pink’ also has superior outdoor performance, and is drought-tolerant once established.

Begonia ‘Santa Barbara™’ (*Begonia hybrida*). As beautiful and elegant as the city it’s named after, ‘Santa Barbara’ has huge 2-inch clean white flowers for an elegant, tropical look. It exhibits outstanding weather and drought tolerance, is easy to grow and has extraordinary performance in hanging baskets, containers and garden beds. In most climates ‘Santa Barbara’ can be grown in full sun. However, shade during

the hottest weeks of the summer is helpful.

Begonia ‘Topspin™’ (*Begonia semperflorens*).

‘Topspin™’ begonia is a great addition to any garden. It tends to tolerate cool temperatures and is ideal for early spring through summer seasons. This begonia is great in containers or for low edging areas of a shade garden.

Begonia ‘Unbelievable Miss Montreal’ (*Begonia hybrida*). Named in part for its cold tolerance, and in part for its classic beauty,

‘Unbelievable Miss Montreal’ features a compact mounding growth habit that is perfect for containers, hanging baskets, and even landscape plantings. Self-cleaning and low-maintenance, the gorgeous coral and white blooms create an irresistible contrast over deep green and bronze foliage.

Bidens ‘Bee Alive’ (*Bidens ferulifolia*). Bidens is excellent for attracting pollinators, such as bees and butterflies. ‘Bee Alive’ comes in an eye-catching novelty color that works great in combination containers as well as in beds and borders.

Calibrachoa ‘Aloha Nani Golden Girl’ (*Calibrachoa hybrida*). Calibrachoa ‘Aloha Nani Golden Girl’ is one of the boldest gold flowers on the market. The ‘Aloha Nani’ series consists of six compact calibrachoa selections that are very versatile. They can be used in combination planters, containers and hanging baskets. Featuring an abundant quantity of oversized flowers in bold colors, the flower-power of the ‘Aloha Nani’ series is truly remarkable.

Calibrachoa ‘Paradise Island Fuseables® F1’ (*Calibrachoa hybrida*). ‘Fuseables®’ contains several varieties in



*Celosia ‘Asian Garden’*

*photo credit: All-America Selections*

one multi-seed pellet. ‘Paradise Island’ consists of ‘Calibrachoa KaBloom™’ yellow, denim and rose, which cannot be purchased separately. Ideal for color bowls, baskets and large patio containers, ‘Paradise Island’ represents the first calibrachoa available from seeds.

Celosia ‘Asian Garden’ (*Celosia argentea*). ‘Asian Garden’ exhibits outstanding branching habit with continual bloom. It can be used as a knee-high garden plant, container plant, fresh cut-flower and dried flower. A pollinator magnet, it tolerates heat, high humidity and diseases. (2017 AAS winner).

Celosia ‘Dracula’ (*Celosia cristata*). ‘Dracula’ is a novelty, first-of-its-kind celosia that bears dark-red flowers atop purple-bronze foliage. Its unusual shape and eye-catching color adds drama to landscapes and containers.

Coleus ‘French Quarter’ (*Solenostemon scutellarioides*). This coleus looks great in the sun or shade. Its stunning colors and patterns hold in either exposure. ‘French Quarter’ is a versatile, premium variety that is very late to never-flowering. This low-

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maintenance, high-impact plant is perfect for large-size containers and back-border landscaping.

Coleus 'Pineapple Surprise' (*Solenostemon scutellarioides*). The unique and versatile tricolor pattern of 'Pineapple Surprise' features leaves that are an iridescent chartreuse in color with deep burgundy hearts splashed with green. Very late-flowering, use this variety for long lasting performance in the garden. Also, it holds up very well in extreme weather.

Coleus 'Fancy Feathers Copper' (*Solenostemon scutellarioides*). 'Fancy Feathers™ Copper' is one of the most unique coleus ever introduced. It has long feathery, multi-colored leaves which are layered in a tufted formation.

This coleus displays a beautiful range of colors from copper and persimmon to magenta. Eye-catching as a specimen, it has a compact, dwarf growth habit and works equally well in small containers or at the front of a border garden.

Coleus 'Main Street Michigan Avenue' (*Solenostemon scutellarioides*). A contemporary take on a popular classic, 'Main Street Michigan Avenue' will hold its color even under high light conditions. The late-season flowering of the 'Main Street' series allows the variegated foliage to remain center stage throughout the growing season. Uniform and easy-to-grow, this textured masterpiece performs equally well in sun or shade, a fact that any gardener is sure to appreciate. It's the perfect foliage complement to other plants in the landscape.

Cosmos 'Cupcakes' (*Cosmos bipinnatus*). Fused petals form deep cups on this amazing new cosmos, discovered by a gardener in California. A mix of semi-double and single blooms in white, light pink, and dark pink adorn the plants. The flowers are great for cutting and the bushy plants stand up well to heat, rain and drought. Plants can reach 48 inches in height and bloom summer through fall.

Cosmos 'Xanthos' (*Cosmos bipinnatus*). The first true yellow cosmos

has arrived. Early flowering with 2½ inch soft-yellow blooms, 'Xanthos' displays a compact yet well-branched growth habit. This novelty cosmos can be merchandised as a top attraction for borders, beds, patio containers and cut flowers.

Dahlia 'Fired Up' (*Dahlia pinnata*). This new dahlia is sure to attract lots of attention in your summer garden. "Fired Up's" enormous, red-orange flowers have luminous yellow centers and measure up to seven inches across. The blossoms have quilled and twisted petals, which gives them extra texture and a casual charm. Plant this dahlia in a prominent spot and let your friends and neighbors enjoy the show.



*Zinnia 'Profusion Red'*  
photo credit: All-America Selections

Dahlia 'Magic Sunrise' (*Dahlia pinnata*). 'Magic Sunrise' is a bright, flamingo-pink dahlia with a glowing yellow center. The sturdy, 3-4 foot plants produce a non-stop supply of big, 6-inch flowers, ensuring months of beautiful bouquets. 'Magic Sunrise' is a great choice for planting at the back of a perennial border, because the colors work so well with other late summer flowers such as purple coneflower, sedum and phlox.

Gazania 'Enorma' series (*Gazania rigens*). 'Enorma' is a new series of gazania that comes in six colors: vanilla,

yellow, yellow with ring, orange, orange with ring and red with ring. Heat and drought tolerant, and bred for large flower size, it has glossy, dark green leaves which are more disease resistant during periods of wet weather than most other gazanias.

Geranium 'Savannah Cerise Sizzle' (*Pelargonium x hortorum*). 'Savannah Cerise Sizzle' features dark foliage, medium vigor, and the best heat and humidity tolerance of zonal geraniums on the market. Vibrant blooms atop well-branched geranium foliage make this an eye-popping display perfect for high-traffic areas, window boxes or patio containers.

Gerbera 'Revolution Red Lemon' (*Gerbera jamesonii*). 'Revolution' gerbera are a great gift plant or an indoor potted plant to enjoy in your home décor or patio space. The bicolored 'Red Lemon' is attractive with its daisy-like, mid-size flowers borne on compact stems with dark green leaves. Remove spent flowers and fertilize to encourage reblooming.

Mandevilla 'Sun Parasol® Apricot' (*Mandevilla hybrida*). Apricot is a breakthrough color in the 'Sun Parasol' mandevilla series. It offers a pastel option that works with softer color schemes. Flowers are large like the 'Sun Parasol Giant' varieties, often spanning 3-5 inches. Flowers have a darker orange ring in the center and soft peach petals. It loves hot weather and has a gorgeous trailing growth habit. This makes it perfect for large hanging baskets or for climbing up trellises.

Marigold 'Fireball' (*Tagetes patula*). 'Fireball' flowers open red, then turn to fiery bronze and dark gold as they mature, producing a multicolored display on one plant. It's perfect in containers or makes a brazen color show in beds and borders. Like all marigolds, it loves sun and heat.

New Guinea Impatiens 'SunStanding Purple' (*Impatiens hybrid*). 'SunStanding

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Purple' New Guinea impatiens sports very bright purple flowers over glossy green and bronze foliage. The entire 'SunStanding' series is both striking and sturdy. They thrive in most garden conditions, tolerating the sun quite well. The 'SunStanding' series is naturally compact and uniform, making them ideal for combos or mass plantings. At home in containers or the landscape, in the sun or the shade, 'SunStanding' are outstanding anywhere.

Nicotiana 'Garnet Gem'® (Nicotiana hybrida). 'Garnet Gem'® flowering tobacco produces showers of starry, red flowers that are trumpet-shaped. Their long tubes swell into a bell-like shape below the flared petals. The reverse of the blooms often shows bright green coloring or stripes of red and green. This new introduction is showy and well branched, resulting in flowers that completely cover the plant. A natural cross of two Nicotiana species, it shows some variability in color and bloom size, but is lovely and unique.

Ornamental Pepper 'Hot Pops Purple' (Capsicum annuum). 'Hot Pops Purple' produces colorful little round pepper fruits that are attractive, but are not for eating. They start orange and mature to purple for multiple colors on the same plant. It's heat tolerant and extends its color well into the fall, for added appeal.

Pentas 'BeeBright'™ (Pentas lanceolata). 'BeeBright'™ is great for attracting pollinators such as bees and butterflies to the garden. It produces vibrant color that will brighten any garden. This new variety is drought tolerant and low maintenance.

Petunia 'Amore™ Queen of Hearts' (Petunia x hybrida). This amazing new petunia series is decorated with beautiful heart shapes on every flower, spreading a message of love and friendship in the garden. With its lengthy flowering period and a strong and uniform semi-trailing habit, it is a fabulous choice for pots, hanging baskets or mixed containers.

Petunia 'Laura Bush Blend' (Petunia x violacea). This old-fashioned petunia is "Texas tough." Bred for heat tolerance and disease resistance, it is a low-maintenance beauty. Named after former First Lady Laura Bush, this variety boasts a classic petunia fragrance. It has a spreading

growth habit and is available in a mix of magenta, purple, pink, and white blooms. Use 'Laura Bush Blend' in containers for a lush patio garden—even in the high heat of summer.

Petunia 'Success!® Pink Vein' (Petunia x hybrida). Make your own success story with the newest color in this easy-to-grow trailing petunia series. The color and performance of 'SUCCESS!® Pink Vein' are unparalleled. It creates mounds of vibrant color in hanging baskets, patio pots or garden beds. The perfectly shaped flowers hold up in the rain or sun and won't break open in the middle. It produces color so bold you will find it irresistible.

Petunia 'Surfinia® Heartbeat' (Petunia x hybrida). 'Surfinia® Heartbeat' exhibits compact growth that is both mounded as well as trailing. Fast-growing and self-cleaning, it displays excellent rain tolerance and is ideal for full sun or part-shade. 'Surfinia® Heartbeat' is a good choice for patio containers, hanging baskets, window boxes and garden beds and borders.

Petunia 'Sweetunia Suzie Storm' (Petunia x hybrida). 'Suzie Storm' joins the 'Sweetunia' series of petunia which is renowned for a broad color range and unique novelties. Its blooms are subtly-veined, deep plum in color and outlined with cheerful raspberry for an eye-popping display. 'Sweetunia Suzie Storm' works well in containers and hanging baskets, thanks to its mid-range vigor, upright-mounding habit and floriferous bloom set.

Sunflower 'Early Black Heart F1' (Helianthus annuus). This new sunflower boasts 7-8 inch flowers with black "faces". Maturing in only 55 days from direct sowing, transplanting is not recommended. Its stunning color combination of dark faces with pale orange petals make it a garden standout. It produces no pollen and grows to 5-6 feet in height.

Verbena 'EnduraScape™ Pink Bicolor' (Verbena peruviana). 'EnduraScape' is tough as nails. It is the first verbena that can take the hottest days of summer but is cold-hardy down to the low teens. 'Pink Bicolor' is the newest color in the series and truly is spectacular in the ground or in large baskets.

Vinca 'Mega Bloom Orchid Halo F1' & 'Mega Bloom Pink Halo F1' (Catharanthus roseus). The 'Mega Bloom' series was bred for outstanding garden performance along with disease resistance. The series boasts very beautiful, soft-colored flowers which are held atop vigorous plants. Like all vinca, the 'Mega Bloom' series is very heat tolerant.

Vinca 'Solar Avalanche F1' series (Catharanthus roseus). The new F1 'Solar Avalanche' series of trailing vinca is comprised of seven separate colors - apricot, burgundy, pink, rose, red, violet and white - plus a complete formula mixture. 'Solar Avalanche' vinca are very floriferous, and the series was bred for having larger, rounded flowers with overlapping petals, from the first blooms produced. Outstanding in baskets, 'Solar Avalanche' makes a great landscape annual as it covers large areas with bloom. Also, it makes a great "spiller" component for patio containers.

Zinnia 'Profusion Red' (Zinnia hybrid). The first true-red zinnia in its class, 'Profusion Red' has been named a 2017 All-America Selections Winner. The 'Profusion' series' uniformity and disease resistance is well-known, and 'Profusion Red' fits right in. This award winner features rich red, single-petaled blooms and flowers continuously from spring through frost. The bright color does not fade, even under high temperatures. 'Profusion Red' is easy to grow since it is self-cleaning, disease resistant and does well in a wide range of climates. The flowers can grow 2½ inches in diameter; plants grow 8-14 inches tall and 24 inches wide.

Zinnia 'Queen Lime with Blush' (Zinnia elegans). 'Lime with Blush' displays sophisticated color combinations and is an innovative, elegant addition to the 'Queen' series. It produces mostly double and semi-double 2-3½ inch blooms with a small percentage of singles. It's not very often that a new color is added to this classic cut flower. Also known as 'Queen Lime with Blotch' it displays excellent garden performance and grows to a height of 30-40 inches.

*Source: National Garden Bureau  
(www.ngb.org)*

# Controlling cucumber beetles and squash bugs in cucurbit crops

by Jaime Panero

*Striped and spotted cucumber beetles and squash bugs are very damaging pests of cucurbit crops (such as cucumber, pumpkins, squash, watermelons, and muskmelons). Managing these pests in gardens and small farms can be challenging. This article discusses trap cropping and mass trapping, two Integrated Pest Management (IPM) strategies that you can use to control cucumber beetles and squash bugs with little or no insecticides applied to the cash crop.*

## Trap Cropping

Trap cropping means using very attractive plants growing in the perimeter of the garden or cucurbit field. These attractive plants pull the pest away from the cash crop. Insects congregated on trap crop plants can be more easily killed with insecticides or by other means. Research conducted by the Lincoln University (LU) IPM program since 2011 indicates that Blue Hubbard squash is a very attractive plant to cucumber beetles and squash bugs and therefore it is an excellent trap crop plant. By using trap cropping, farmers have reduced inputs (fuel, labor, time, and insecticides) and they have increased income while protecting pollinators and other beneficial insects. As an example, one producer from St. Peters has not sprayed any insecticides to his cucurbit cash crop since 2011. He only applies a small amount of insecticide to the Blue Hubbard seedlings shortly before transplanting them to the corners of his fields. He currently sells his cucurbit produce as insecticide-free.

Using trap crop plants is easy and inexpensive. In Central Missouri, mid-April is the time to start growing Blue Hubbard squash transplants. The key is to transplant 2-week old Blue Hubbard seedlings (trap crop plants) to the field at the same time you sow the seeds of your cucurbit cash crop. If you grow your cash crop from transplants, then you will need to transplant the Blue Hubbard seedlings at least 2 weeks before your cash crop. A second piece of advice is to use an insecticide to kill the insect pests on the trap crop plants. Remember, having 1-2 cucumber beetles or squash bugs on your cash crop doesn't mean that you need to spray. It may be possible that you don't have to spray insecticides to your cash crop at all!

Our research has demonstrated that for a small garden of 100 or so cucurbit plants, you can be successful at controlling cucumber beetles and squash bugs using 6-8 Blue Hubbard squash plants. For a small farm, if you grow cucurbits using plastic mulch and drip irrigation then we recommend you transplant 2-4 Blue Hubbard squash seedlings to both ends of each row.

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*Blue Hubbard squash plants (larger plants on left) used as trap crops planted at both ends of each row.*

## Mass Trapping

The LU IPM program recently developed a simple, mass trapping system that has proven to be an effective component of an IPM strategy to control cucumber beetles. When deployed in a cucurbit field, both striped and spotted cucumber beetles are drawn to the traps and away from the cash crop. Upon entering the trap, the beetles are killed by their consumption of an insecticide-laced bait. However, this mass trapping system won't control squash bugs. If squash bugs are the main pest in your garden / farm, then we suggest using trap cropping.

The three components of the trap are: (1) a juice / milk jug, (2) a commercial, floral-based lure (or attractant) (source: AgBio© Inc., Westminster, CO; phone: (303) 469-9221), and (3) a commercial "stun pill" (that kills the trapped insects) composed of an insecticide, paraffin wax, and powdered buffalo gourd.

The pictorial below shows (A) the protective wings of the AgBio lure being removed – to aid in scent dispersion, (B) lure being inserted through the mouth of a yellow-painted milk jug, (C) trap deployment in a zucchini field (Lee Farms, Truxton, MO), and (D) the various ways entrance holes (for the beetles) that can be made.

Results from research conducted from 2011 to 2013 at the LU George Washington Carver Farm indicated that yellow-painted traps baited with the commercial AgBio© floral lure performed best. In 2011, 28 baited traps killed 2,531 cucumber beetles (combining striped and spotted) in a watermelon crop over a 9-day period. This combined reduction of spotted and striped cucumber beetles reduced the need for an insecticidal spray while maintaining production of marketable fruit. In 2015, on-farm research on mass trapping conducted at one commercial vegetable farm located at Truxton MO, indicated that 28 traps killed 3,715 cucumber beetles (combining striped and spotted) over an 8-week period (21 May - 9 July). Overall, the level of beetle suppression was so effective that the number of insects found on plants averaged 0.42 per plant, a number that is below what is called an economic threshold (= pest density at which insecticide applications are justified).

Results gathered over multiple years in various locations indicate that the mass trapping system developed is effective at suppressing striped and spotted cucumber beetles from cucurbit plants. Some producers in a couple of Missouri locations are currently evaluating the performance of this novel mass trapping system.

Overall, our 2015 data indicate that, across the entire trapping period, for each cucumber beetle found on a plant, there were 26 cucumber beetles killed by a trap. In 2016, 15 traps killed 3,217 striped cucumber beetles in a 6-week period.

*For more information on mass trapping, go to the LU IPM program webpage: <https://www.lincolnu.edu/web/programs-and-projects/ipm> or to the MU IPM program webpage <https://ipm.missouri.edu/IPCM/2016/6/A-novel-mass-trapping-system-to-control-cucumber-beetles-in-cucurbit-crops>.*

*Funding for trap cropping research was provided by the Ceres Trust: An Organic Initiative (<http://cerestrust.org/>), and by the USDA/National Institute of Food and Agriculture (NIFA) Capacity Building Award No. 2011-38821-30867. Funding for mass trapping research was provided by the North Central Region IPM Center through Sub-Award # 2007-04967-35 and by the USDA/NIFA Capacity Building Grant program, Award No. 2011-38821-30867.*



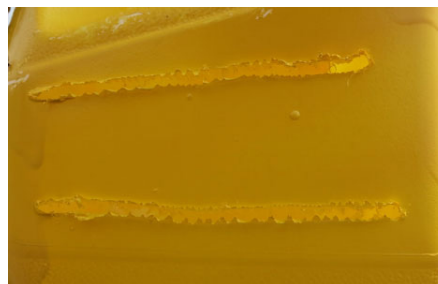
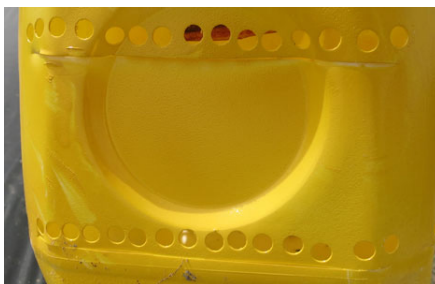
*A. Protective wings of the AgBio lure being removed - to aid in scent dispersion.*



*B. Lure being inserted through the mouth of a yellow-painted milk jug. (slits about 1/4 inch).*



*C. Trap deployment in a zucchini field (Lee Farms, Truxton, MO).*



*D. Various ways beetle entrance holes can be made: hole punch, rotary tool and by using a knife.*

# MARCH GARDENING CALENDAR

Gardening Calendar supplied by the staff of the William T. Kemper Center for Home Gardening located at the Missouri Botanical Garden in St. Louis, Missouri. ([www.GardeningHelp.org](http://www.GardeningHelp.org))

Category	Week				Activity
	1	2	3	4	
Houseplants	x	x	x	x	Two handsome houseplants that provide fragrant blossoms indoors this month are the Confederate jasmine ( <i>Trachelospermum jasminoides</i> ) and Japanese pittosporum ( <i>Pittosporum tobira</i> ). Both thrive in average home conditions and are easy plants to grow.
	x	x	x	x	As day lengths increase, plants begin new growth. Repot rootbound plants, moving them to containers 2 inches larger in diameter than their current pot. Check for insect activity and apply controls as needed. Leggy plants may be pruned now.
Ornamentals	x	x	x	x	Trees, shrubs and perennials may be planted as soon as they become available at local nurseries.
	x	x	x	x	To control iris borer, clean up and destroy the old foliage before new growth begins.
	x	x	x	x	Fertilize bulbs with a "bulb booster" formulation broadcast over the planting beds. Hose off any granules that stick to the foliage.
	x	x	x	x	Dormant mail order plants should be unwrapped immediately. Keep the roots from drying out, store in a cool protected spot, and plant as soon as conditions allow.
	x	x	x	x	Loosen winter mulches from perennials cautiously. Re-cover plants at night if frost returns. Clean up beds by removing all weeds and dead foliage at this time.
	x	x			Heavy pruning of trees should be complete before growth occurs. Trees should not be pruned while the new leaves are growing.
	x	x			Seeds of hardy annuals such as larkspur, bachelor's buttons, Shirley and California poppies should be direct sown in the garden now.
		x	x	x	Summer and fall blooming perennials should be divided in spring.
			x	x	Ornamental grasses should be cut to the ground just as the new growth begins.
			x	x	Spring bedding plants, such as pansies and toadflax ( <i>Linaria</i> sp.), may be planted outdoors now.
			x	x	Apply a balanced fertilizer such as 6-12-12 to perennial beds when new growth appears.
			x	x	Apply sulfur to the soils around acid-loving plants such as azaleas, rhododendrons, hollies and dogwoods. Use a granular formulation at the rate of 1/2 pound per 100 square feet.
				x	Gradually start to pull back mulch from rose bushes.
Lawns	x	x	x	x	Mow lawns low to remove old growth before new growth begins.
		x	x	x	Apply broadleaf herbicides now for control of cool-season perennial and annual weeds. These must not be applied to areas that will be seeded soon.
		x			Apply controls for wild garlic. It will take several years of annual applications for complete control.
			x	x	Thin spots and bare patches in the lawn can be overseeded now.
Vegetables	x	x	x	x	Any root crops such as horseradish, parsnips, Jerusalem artichokes, or carrots still in the ground from last year should be harvested before new green top growth appears.
	x	x	x	x	Cultivate weeds and remove the old, dead stalks of last year's growth from the asparagus bed before the new spears emerge.

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# MARCH GARDENING CALENDAR

Category	Week				Activity
	1	2	3	4	
	x	x	x	x	Fertilize the garden as the soil is being prepared for planting. Unless directed otherwise by a soil test, 1 to 2 pounds of 12-12-12 or an equivalent fertilizer per 100 sf is usually sufficient.
	x	x			Delay planting if the garden soil is too wet. When a ball of soil crumbles easily after being squeezed together in your hand, it is dry enough to be safely worked.
	x	x			Asparagus and rhubarb roots should be planted as soon as the ground can be worked.
		x	x	x	Plant peas, lettuce, radishes, kohlrabi, mustard greens, collards, turnips, Irish potatoes, spinach and onions (seeds and sets) outdoors.
			x	x	Plant beets, carrots, parsley and parsnip seeds outdoors.
			x	x	Set out broccoli, cabbage, Brussels sprouts, Chinese cabbage and cauliflower transplants into the garden.
				x	Start seeds of tomatoes, peppers and eggplants indoors.
Fruits	x	x	x	x	Gradually remove mulch from strawberries as the weather begins to warm.
	x	x	x		Continue pruning apple trees. Burn or destroy all prunings to minimize insect or disease occurrence.
	x	x			Continue pruning grapes. Bleeding causes no injury to the vines. Tie vines to the trellis before the buds swell to prevent bud injury and crop loss.
		x			Cleft and splice grafting can be done now. This must be completed before rootstocks break dormancy.
			x	x	Aphids begin to hatch on fruit trees as the buds begin to open.
			x	x	Apply dormant oil sprays now. Choose a dry day when freezing temperatures are not expected.
			x	x	Spray peach trees with a fungicide for the control of peach leaf curl disease.
				x	Mulch all bramble fruits for weed control.
				x	Peaches and nectarines should be pruned just before they bloom.
Miscellaneous	x				Red maples begin to bloom.
	x				Set up nesting boxes for bluebirds.
	x				Watch for the harbinger of spring ( <i>Eriogonum bulbosum</i> ) blooming in rich wooded areas.
		x	x	x	Spicebush is blooming in moist woodlands.
		x			Raise purple martin houses this week.
			x		Purple martins return to the St. Louis area.
				x	The white flowers of serviceberry ( <i>Amelanchier</i> sp.) and wild plum ( <i>Prunus americana</i> ) are showy in wooded areas.

Gardening Calendar supplied by the staff of the William T. Kemper Center for Home Gardening located at the Missouri Botanical Garden in St. Louis, Missouri. (www.GardeningHelp.org)