Cover Crops Improve Garden Soil
Linda Geist, Writer for University of Missouri Extension

“You don’t need a green thumb to be a good gardener, but it certainly helps to have good soil,” said University of Missouri Extension horticulturist David Trinklein.

“Unfortunately, many of us are burdened with soils that need help,” he said. One of the best ways to help soils be more productive is to add organic matter, Trinklein said. Organic matter improves soil structure, increases nutrient content and exchange, aids in water retention, and enhances the microbial population of the soil. That’s why some call organic matter “a gardener’s best friend,” he said.

Perhaps the easiest and least expensive way to add organic matter is to plant cover (or green manure) crops. In vegetable gardens, cover crops frequently are planted as the harvest is completed.

Annual ryegrass is one of the most popular and reliable grasses to plant as a garden cover crop, Trinklein said. It grows quickly, competes well with weeds and does a fine job of building soil structure because of its extensive root system.

If planting a cover crop must be delayed into fall, grasses with greater winter hardiness such as rye and oats are good choices. Both tolerate cold quite well and may grow throughout the winter, weather permitting, said Trinklein.

Gardeners often use cover crops as “catch crops” to take up and fix any residual fertilizer, especially nitrogen that

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Plants with Winter Interest
Katie Kammler, MU Extension Horticulture Specialist

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would be lost through leaching during the fall and winter. Add a balanced fertilizer such as 15-15-15 at the rate of about 10 pounds per 1,000 square feet for more vigorous and predictable growth.

Gardeners with ample space might consider rotational planting, with a full-season cover crop as part of the rotation. This type of cover crop is planted in the spring and must be able to withstand the heat of summer.

Good full-season cover crops for gardens include buckwheat, sorghum-Sudan grass hybrids, cowpea and soybean. They are easy to establish, grow rapidly and compete well with weeds. Cowpea and soybean are legumes and add nitrogen as well as organic matter.

Turn cover crops under in early spring when the soil is dry enough to work—preferably, at least three to four weeks before planting. This gives soil microbes adequate time to break down the organic matter in cover crops to a more stable form, Trinklein said.

Turn under cover crops thoroughly. Exposed parts of the plant might decompose slowly or not at all. Partially decomposed organic matter tends to tie up nitrogen. If the cover crop becomes tall, mow before turning it under.

For more lawn and garden articles from MU Extension, go to extension.missouri.edu/LawnGardenNews.

Wildflower of the Month:
Blue Mistflower
Conoclinium coelestinum

Herbaceous perennial; Also call blue boneset.
Height: 12 to 18 inches
Flower: Blue, purple, pink, lavender
Bloom time: July to October (through frost)
Comments: Blue Mistflower is easily grown in average, well-drained soil. It spreads aggressively by rhizomes and though reseeding so it naturalizes well. It is attractive to butterflies, skippers and long-tonged bees. It looks like annual ageratum but it is hardy. Found typically south of the Missouri River. No serious insect or disease problems.

Information sources: Grow Native! and Missouri Botanical Garden

Top and Left pictures courtesy of Missouri Botanical Garden. Bottom left picture from Grow Native!
Outdoor Flowering plants and Ornamentals

- Take time to enjoy the fall colors in the landscape!
- Container grown and B&B trees and shrubs can be planted now.
- For best bloom later this winter, Christmas cactus, potted azaleas and kalanchoe may be left outdoors until night temperatures drop to about 40 degrees F.
- Cannas and dahlias can be dug when frost nips their foliage. Allow plants to dry under cover in an airy, frost-free place before storage.
- Transplant any deciduous trees once they have dropped their leaves.
- Old fallen leaves can harbor disease pathogens, if a tree or shrub had foliar disease problems, pick the leaves up and dispose of them.
- Fall needle shed of pines is starting to occur so don’t panic if your pine looks a bit yellow. It will come out of it.
- Put tree guards on young trees to protect against rabbits and deer.
- Leaves from heavily wooded gardens can be beneficial to the garden and should not be burned or discarded. Instead, put them through a shredder and use as a mulch or add to your compost pile.

Vegetable Gardening

- Finish cleaning up garden areas. Compost only non-diseased foliage and plants. Remove all cages and stakes.
- Sow cover crops such as winter rye or winter wheat after crops are harvested and plants are pulled.
- Harvest winter squash and pumpkins before frost. For best storage quality, leave an inch or two of stem on each fruit.
- Now is a good time to soil test your vegetable garden.

Fruits and Nuts

- Persimmons are starting to ripen now, especially after frost.
- Place wire guards around trunks of young fruit trees for protection against mice and rabbits.

Lawns

- Don’t retire the lawn mower when the grass growth slows down this fall. As long as it continues to grow, it should be mowed.
- Seeding grass seed should be finished by October 15.
- Fall is the time to control certain broadleaf weeds in the lawn including chickweed, white clover, dandelion, and wild onion.
- Keep leaves raked off lawns to prevent smothering grass.

Indoor Plants

- Bring houseplants indoors before night time temperature dip below 50 degrees F.
- Examine houseplants for insects and disease issues that could easily spread.
As far as animal pests go, armadillos are a fairly new one to Missouri. I’ve had some trouble with them in my yard in years past but this year they have been causing lots of damage. Every time I mow the lawn there are new holes in various places. I’ve also found that because I water some of my flower beds with the drought conditions, the armadillos dig in the watered spots hunting for insects. I replanted some new daylilies 3 times because they dug them out every evening.

Armadillos have been working their way northward from Mexico since the 1850s. They have become common in the southern half of the state. Armadillos are about the size of a possum and similar in looks, hence the nickname, possum on a half shell.

Armadillos are mainly nocturnal. They burrow in the ground and have extremely strong legs that are adapted for digging. They often root about in ground litter searching for insects, grubs, and other invertebrates. They have poor eyesight and hearing so they rely on a strong sense of smell to find food. They have sticky tongues that capture their insect prey and swallow them whole. They don’t have front teeth but can chew larger prey with peglike molars.

When they are searching for food, they tend to be oblivious to anything else so they may come in close contact with humans before becoming alarmed. When they are startled, they jump in the air, which is why you see a lot of armadillos dead along the highway. Cars are pretty much their only enemy. My dog would love to get one but he can’t get a good grip on it because of the armor. While we can sneak up on them, they typically do not sneak up on us. They are noisy travelers, so noisy in fact that you think a large deer is coming your way. They are fast runners and good swimmers.

Luckily, they only produce one litter a year, usually in March or April. They give birth to 4 young, all the same sex. There is one egg that is fertilized that then splits into 4 identical young. This is the only mammal in Missouri to reproduce this way.

The limiting factor on their northern range is freezing temperatures. So I’m hoping for a cold, long winter to help with the population. When winter arrives, their food supply becomes scarce and frozen ground conditions prevent them from digging in search of food. To escape the cold, they will retreat underground. However, they are unable to hibernate and will either freeze or starve to death in such conditions.

As mentioned earlier, most of the damage comes from the digging and rooting that they do looking for insects to eat. They can also cause damage when they burrow under foundations, driveways, and other structures. When I mowed the lawn last week, I discovered a burrow under a sidewalk that I need to do something about. Armadillos have also been known to carry the bacterium associated with human leprosy but no conclusive evidence that humans can contract leprosy from contact with armadillos has been found.

If they become a big enough nuisance, here are some tips to prevent damage. Exclusion with fencing can help but remember that armadillos burrow and can climb also. Adding electric to fencing can be effective in a garden area. Trapping can be effective but tends to be more complicated than trapping other garden pests. Spot light hunting can also work but you need to know the regulations in the area where you live.

For more info: https://extensiondata.missouri.edu/pub/pdf/agguides/wildlife/g09456.pdf
BeeSmart
This free app lists plants for pollinators and can be searched by pollinators, soils, bloom color, sun to shade requirements and plant type. Plug in the zip code for the area you would like to grow and it will tell you the ecology of the region. It will also provide a list of plants with light, soil preference, flower season, height and spread and tell you if bees or butterfly prefers each plant. Compatible with: iPhone, iPad, iPod Touch and Android.

Leafsnap
This free app features visual recognition software to help identify tree species from photographs of their leaves. It currently includes trees of the Northeast. It can also be used for browsing species without being connected to a Wi-fi network. The tree must be included in the app for the app to be able to identify what you have and it is not always successful but the app is worth a shot and you may be surprised how often it helps. Compatible with: iPhone, iPad, iPod Touch

Armitage’s Greatest Garden Plants
Allan Armitage wrote what many consider the annual and perennial bible for those who want to learn more. In this app, it uses his information in a format that can be searched by annual, perennial, by light requirement or by flower color. This is a great way to make a selection when you are landscaping if you are looking for something new or just aren't sure what options are out there. The app costs $4.99 but has great pictures. Compatible with iPhone, iPad, iPod touch and Android.

Bugs and Insects Expanded Edition
5000 images of insects can be fully viewed offline once the app is downloaded. Provides basic information and some acts about each image. The app is educational and costs only $.99. Compatible with iPhone, iPad, and iPod touch.

Fertilizer Calculator
University of Georgia offers free access and calculation of fertilizer needs. At http://aesl.ces.uga.edu/soil/fertcalc/ you are able to plug in soil test recommendations, select a fertilizer ratio that is accessible in your area or already in your shed and the app will calculate what you need how much to apply.
Drought in Fall
Donna Aufdenberg, MU Extension Horticulture Specialist

Periods of drought in the summertime are a common occurrence in the Midwest. Usually by fall, we start seeing the rains return. If droughty weather persists into October and November, then gardeners should take care to still water plants! During this time of year with the cooler weather upon us, the thought of watering only occurs when the stress has already set in or when it is only too late to prevent damage, gradual decline or sudden death.

What does a plant under “drought stress” look like? Symptoms of drought injury can be sudden or they can take up to 2 years to be revealed. Drought injury symptoms on plant leaves include wilting, curling at the edges, yellowing and leaf drop. Evergreen needles may turn yellow, red or purple and may also turn brown at the tips of the needles and browning may progress down the needle towards the twig. If you’re watering and you are getting these symptoms, take caution. Overwatering can have the same signs and symptoms as underwatering.

How do I water the plants? It is always best to do a slow deep watering, if possible. Always try to saturate the soil around trees and shrubs within the “dripline” which is the outer edges of the tree’s branches. The objective is to water slowly to penetrate the root zone. Watering for short periods of time only encourages shallow rooting which can lead to future drought damage. Many try to dig holes in the ground in the effort to water deeply. This just dries the roots out even more. Overhead irrigation is not efficient and should be avoided during drought conditions. For certain species of plants, overhead watering helps to promote the onset of diseases. For best results, watering at the base of plants is usually a better choice for irrigation.

There are several approaches to watering plants. One is water by hand, applying water to a plant with a hose. Another is to allow the hose to trickle at the base of the plant for some period of time. There are a couple problems with these methods. The person watering usually has no idea how much water has been applied and there is no guarantee that the water that was applied went into the root ball. The best approach for the first year after planting is to use some form of drip irrigation or soaking method that will wet the soil ball itself. These can always be attached to battery-operated timer programmed to turn the water off after one or two hours of operation.

How much do I water? A general “rule of thumb” for small and medium size trees is to use approximately 10 gallons of water per inch of trunk diameter for each watering. This should be applied at 7 to 10 day intervals. Smaller trees around 1-7 inches in diameter and small shrubs are usually more prone to drought damage. Medium and large trees and shrubs are usually established and are able to handle short-term droughts.

Just remember, overwatering can also seriously damage trees. It takes 62 gallons to apply 1 inch of water to 100 square feet. Apply this quantity of water for several days to a soil that already has a good moisture supply can suffocate some of the tree roots. So, be careful and pay attention when watering trees and shrubs. If you have questions or doubts on how to do it, ask a plant expert.
Upcoming Events

The following Master Gardener meetings are held each month. All are welcome to attend. Please contact your local extension office to confirm location of next meeting.

Parkland MGs - 1st Monday, 6:30pm, Farmington Public Library
Poplar Bluff MGs - 1st Tuesday at 6:00 pm. Call 573-686-8064 for the location.
Ste. Genevieve MGs - 2nd Thursday, at 6:30pm, Ste. Gen. County Extension Center
Cape Girardeau MGs - 3rd Thursday at 7:00pm, Cape County Extension Center from Nov to March and Shawnee Park Center from April to Sept. Call 573-238-2420 for questions.
Perry MGs - 4th Monday at 6:30pm, Perry Co. Extension Center

October

2 thru 4 - 2017 Lincoln University High Tunnel Construction Workshop at the Backmon Farm Site at 32 Queens Rd., Oran, MO from 9 am to 5 pm. For more information, contact David Robinson at 573-703-6551 or robinsond@LincolnU.edu

7 - Missouri Prairie Festival in St. Louis organized by eMAP to benefit MPF.

11 - Twilight Tour - Hamra Farms (hydroponic produce) in Sikeston, MO. 6:00 p.m. Tours are $5. Register at 573-238-2420

12 - Greenhouse and High Tunnel Workshop at Missouri State Fruit Experiment Station in Mountain Grove, MO on Thursday and Friday, October 12-13. Cost: $50. For more information, visit the website http://ag.missouristate.edu/mtngrv/Workshop2017.htm or contact Leslie Akers at 417-547-7500.

14 - Evening on the Prairie following MMN Prairie Day at Dr. Wayne Morton’s prairie by Cole Camp.

18 - Produce Safety Alliance Training. Fruit and vegetable growers who make $25,000 or more each year with interest in learning produce safety, the new Food Safety Modernization Act (FSMA) Produce Safety Rule and Good Agricultural Practices (GAPs). Fee: $50. Call 573-686-8064 to register.

November


4 - Grow Native! Native Tree Walk at Bellefontaine Cemetery. In partnership with Bellefontaine Cometary, St. Louis, led by Cemetery Horticulture Supervisor Kyle Cheeseborough, 10 a.m. Limited to 45. Free. Registration information coming soon. Questions? Call 888-843-6739.

Upcoming Program!

Debi Kelly, MU Extension Local Foods Specialist

Hold the Date!

Small Acreage and Land Entrepreneur (SALE) Conference

Saturday, December 2, 2017
Jefferson College, Hillsboro MO
8:15 am to 4:30 pm

Gain practical knowledge and explore the possibilities for your small acreage at this informative conference. Area agriculture specialists will be hosting the Small Acreage and Land Entrepreneur Conference. The conference will be a daylong learning opportunity for people who are excited to learn more about opportunities with a small acreage and ways they can make income on their land. Topics will include pumpkins, beekeeping, marketing, recordkeeping, goats, grants and more. Stay tuned. More information to come.

For more information, contact Debi Kelly at 636-797-5391 or kellyd@missouri.edu
One plant I remember growing up was a gigantic hoya growing in a hanging basket. On one occasion I remember, there was such excitement in the house because after 8 years of nurturing and caring for it, it was finally in bloom. I remember being in amazement of the simple beauty of each set of blooms.

A Hoya or Wax plant, *Hoya carnosa*, is a houseplant that has a good reputation for being indestructible. This vining plant has waxy, dark green leaves and is great for decorative pots or hanging baskets. Common varieties include ‘Hindu rope’, ‘Krinkle’, ‘Tricolor’, ‘Rubra’ and ‘Silver Pink’.

Hoyas do well with various levels of light, even the low light that can be found in most houses. At low lights, they will stay green with slow growth and no blooms. At higher lights, growth is medium to fast and the plant will bloom. A healthy green plant is nice but blooms would be nicer if you can increase the light level.

Bright lights and plant age is reported to be key ingredients for getting Hoyas to bloom. I have always heard that they bloom best after several years of growth and in a root bound state. Fertilizing with a balanced fertilizer during active growth will also help induce flowering.

The flowers come in clusters along the vine. Each white to pink flower is on a small stalk radiating from a spur on the vine. Clusters resemble small umbrellas. It is important to resist the urge to remove any spent blooms as blooms will re-occur in the same location year after year. Also, do not move the plant once flower buds appear.

It is best to allow the soil to dry out between waterings. They love high humidity so misting is a plus. As with other plants, expect to water less in winter during slow growth and more in summer with active growth.

Plants can be subject to scale insects and mealy bugs. They can also suffer with black sooty mold and honey dew growing on their leaves.
Hamra Farms in Sikeston

October 11, 2017 beginning at 6:00 pm

Pre-registration is required. Cost - $5.00 paid by phone or at the tour.

Another grower using diverse horticulture practices in a fairly new enterprises, Hamra Farms uses the latest growing techniques to have year round produce and some extended season produce. Farm products are truck delivered in Missouri, Arkansas, Tennessee and Kentucky. Hamra is a major provider to school systems in this area, providing vegetables to students.

Growers, Steve Hamra, will be available to answer questions about the process and how the company continues to grow.
Produce Safety Alliance (PSA) Grower Training

October 18, 2017
8:00am – 5:30pm CDT

Sponsored by: The Produce Safety Alliance, University of Missouri Extension and Missouri Department of Agriculture.

Cost: $50.00 per person

Includes PSA Training Manual ($50), Association of Food and Drug Officials (AFDO) Certificate of Completion ($35), light refreshments, lunch ($15) and speakers ($100). Payment must be made at the time of registration, and WILL NOT be accepted at the door.

Who Should Attend:
Fruit and vegetable growers who bring in over $25,000 each year and others interested in learning about produce safety, the new Food Safety Modernization Act (FSMA) Produce Safety Rule and Good Agricultural Practices (GAPs). The PSA Grower Training Course is one way to satisfy the FSMA Produce Safety Rule requirement outlined in 112.22(c) that requires "At least one supervisor or responsible party for your farm must have successfully completed food safety training at least equivalent to that received under standardized curriculum recognized as adequate by the Food and Drug Administration."

Participants will learn about produce safety practices and key parts of the FSMA Produce Safety Rule. There will be time for questions so participants should come prepared to share experiences during discussions in each of these areas:

- Introduction to Produce Safety
- Worker Health, Hygiene, and Training
- Soil Amendments
- Wildlife, Domesticated Animals, and Land Use
- Agricultural Water (Production and Postharvest)
- Postharvest Handling and Sanitation
- How to Develop a Farm Food Safety Plan