Weed It and Reap

FRANKLIN COUNTY COOPERATIVE EXTENSION SEPTEMBER 2023 NEWSLETTER

Martin-Gatton College of Agriculture, Food and Environment

Franklin County
101 Lakeview Court
Frankfort, KY 40601-8750
(502) 695-9035
Fax: (502) 695-9309

Time to Plant Your Fall Garden

Source: Rick Durham, UK extension horticulture specialist

As the summer warmth begins to wane, you don't have to bid farewell to the joys of cultivating your garden. This time between seasons offers a golden opportunity to plant a vibrant fall vegetable garden, promising an uninterrupted flow of produce throughout autumn. Alternating balmy days and brisk nights support a variety of cool-season vegetables for your family to enjoy.

Some of the best quality vegetables are produced during fall's warm days and cool nights. These environmental conditions add sugar to late-season sweet corn and cole crops, such as cauliflower and cabbage, and add crispness to carrots.

Fall vegetables harvested after early September consist of two types: the last succession plantings of warm-season crops, such as corn and bush beans, and cool-season crops that grow well during the cool fall days and withstand frost.

When planting a fall garden, group crops the same way you would in the spring; plant so taller plants don't shade out shorter ones. To encourage good germination, fill each seed furrow with water and let it soak in. Keep the soil moist until seeds have germinated. Be aware that cool nights slow growth, so plants take longer to

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mature in the fall than in the summer.

You may use polyethylene row covers to extend the growing season of frost-sensitive crops, such as tomatoes, peppers and cucumbers. This helps trap heat from the soil and protect the crop from chilly night temperatures.

Often Kentucky experiences a period of mild weather after the first killing frost. If you protect frost-sensitive vegetables at critical times in the fall, you could extend the harvest season by several weeks.

Once these vegetables die due to lower temperatures, you may be able to plant cool-season crops in their place. Leafy greens like lettuce and spinach may grow into November or

December under polyethylene row covers if outside temperatures do not drop below the teens. Be sure to allow for ventilation on sunny days to prevent overheating.

You may successfully seed or transplant the following vegetables now for fall harvest: beets, Bibb lettuce, broccoli, Brussels sprouts, cabbage, carrots, cauliflower, collards, endive, leaf lettuce, kale, mustard greens, spinach, snow peas and turnips.

For more information about horticultural topics or classes near you, contact the Franklin County Cooperative Extension Service.

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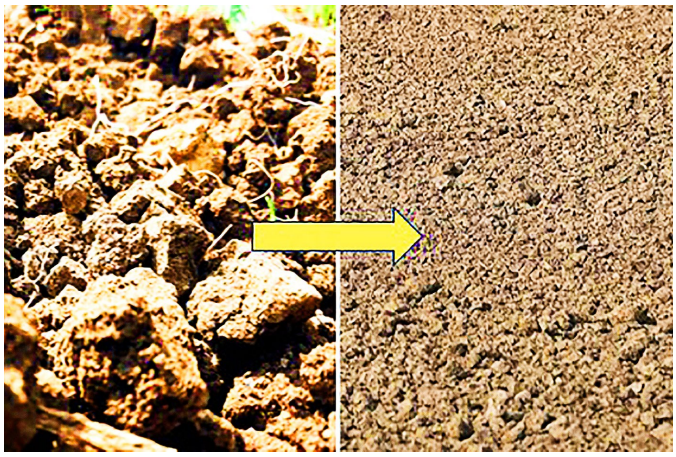
Improving Poor Soil: Turning Lemons into Lemonade

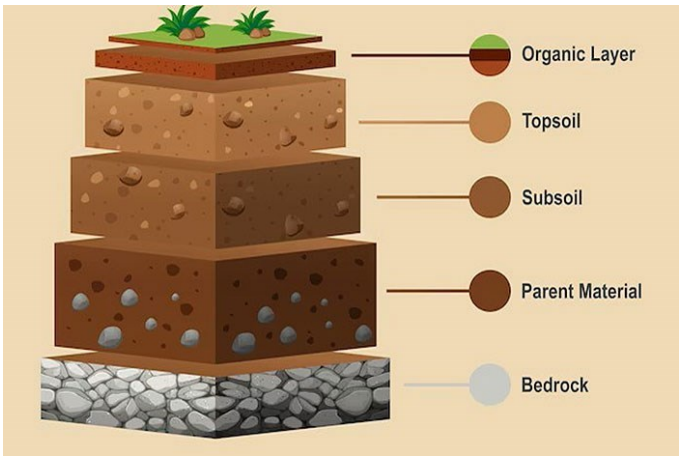
David Trinklein-University of Missouri Plant Science & Technology



The soil that sustains plant life is very complex and quite variable. One classic definition for soil states that it (soil) is the "chemically and physically weathered, biologically molded upper layer of the earth's regolith." The definition, in part, describes the intricate nature of soil both from the standpoint of its origin and composition.

The source of all soil is rock. In particular, it results from the weathering of the mantle rock which is the layer of disintegrated rock fragments that exist in varying depths above the soil rock of the earth's crust. This component of the earth's cover often is referred to as the regolith.

In the upper portions of the regolith, rapid weathering takes place. It is this weathering that leads to the development of soil as we know it. Soil covers the earth in a very thin layer when compared to the regolith and bedrock below it. Remarkably, it is this thin layer combined with the proper amounts of air and water that supports life. Only when soil exists can land plants and all the animals they sustain grow and thrive.



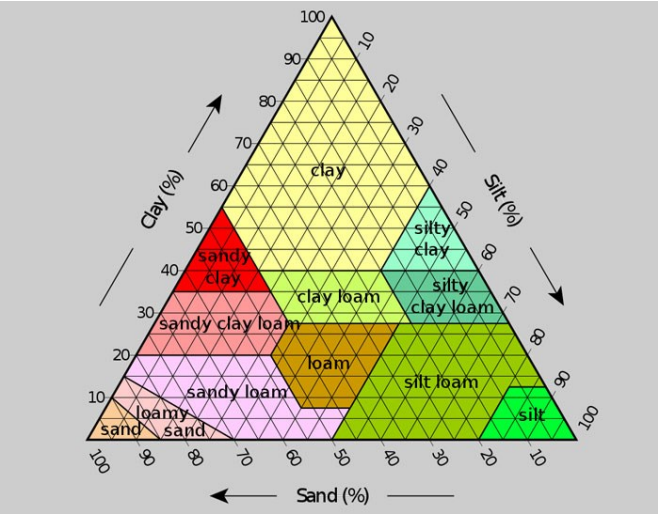
Depiction of layers comprising Earth's crust.

For those who have gardens and landscapes, the details of soil complexity may not seem that important. However, without any special training we know that plants grow very well in good topsoil, and very poorly in subsoil. Erosion, construction, and a variety of other processes often leave gardeners and homeowners only with subsoil, or something closely akin to it in structure and appearance, after the topsoil has eroded away or removed purposefully by man.

The question arises then, "Is it possible to grow plants in subsoil?" The answer is "yes," but with the understanding that the conditions needed for good topsoil—proper proportions of air, water, mineral materials, and organic matter—must be developed in what currently is subsoil. In essence, gardeners and homeowners need to create topsoil as much as possible from subsoil in a few years—a process that takes nature thousands of years to accomplish.

The major portion of any soil consists of its mineral components. The mineral component of soil is made up of particles raging in size from large sand particles, to smaller silt particles, and (finally) to very

fine particles of clay. The ratio of sand, silt, and clay is known as soil texture. A mixture of these three particle sizes (in proper proportions) creates a soil texture known as loam. The latter is considered to be soil good for gardening because of its ability to retain water and nutrients, while at the same time allowing excess water to drain through freely.



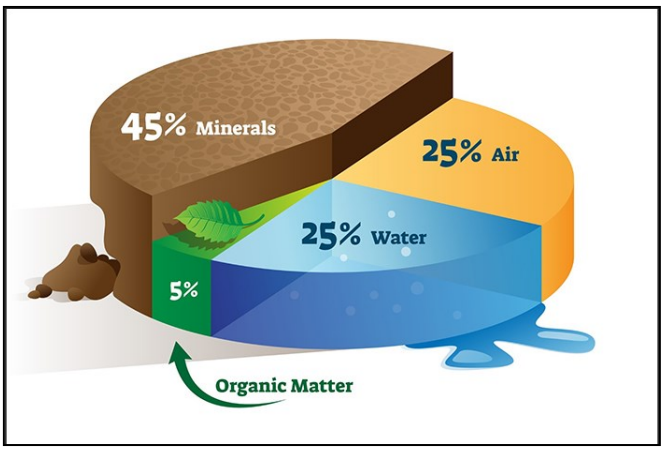
Soil texture triangle. Note: loam is a mixture of sand, silt, and clay particles.

Another important component of a garden loam is organic matter which is essential for good plant growth. Organic matter improves soil structure by acting as a bonding agent that holds soil particles together in aggregates. Without organic matter, aggregates are less stable and can be easily broken apart. Soil aeration, water drainage, root growth, and biological activity all are affected by the organic matter content of soil.

The average upland mineral topsoil contains from only two to four percent organic matter (by weight). This rather small amount is caused by the continual decay of organic matter by soil microorganisms. Since organic matter is constantly being broken down, it needs to be replaced either by nature of by the gardener on a regular basis. Ideally, soils destined for growing ornamental flowers and vegetables should contain a minimum of five to ten percent organic matter.

Subsoil differs from topsoil in several ways. Perhaps the most important of these is that in subsoil organic matter content is greatly reduced to less than one percent or, in certain cases, none. As mentioned above, organic matter is important for creating soil structure. The latter, in turn, greatly influences the pore space of soil which represents the area in which air and water move, providing essential nutrients and oxygen to plant roots.

In a good soil, such as a silt loam, the pore space may comprise as much as 50 percent of the soil (by volume). Of the 50 percent, ideally half (25 percent) is air space and half (25 percent) is made up of water-holding space. Subsoils, and particularly clay subsoils, contain much less pore space which reduces root activity and (consequently) shoot growth as well.



Acceptable ratio of particle matter, air, and water in a garden soil.

Since, in nature, organic matter is important in converting subsoil into topsoil, the frequent application of organic matter to poor garden soils will start the process

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topsoil development. Compost is ideal but, in many cases, in short supply. Therefore, materials such as tree leaves, grass clippings, straw, organic mulches such as bark and wood chips can be added to decompose and contribute to soil organic matter.

Where large areas must be improved, the use of green manure crops is an inexpensive way to help build organic matter in soil. Grasses with fine, extensive root systems such as annual ryegrass (*Lolium multiflorum*) are ideal. Because of its vigor and rapid growth rate, a warm-season grass such as a Sorghum-Sudangrass hybrid (a.k.a., Sudex) can add significant amounts of organic matter to poor soil at a time when cool season grasses go dormant.

Because of their tremendous growth rate and heat tolerance, Sorghum-Sudangrass hybrids can add large amounts of organic matter to soil as a summer cover crop.

With the addition of nitrogen and other nutrients to assist organic matter decomposition by soil microorganisms, the process of soil improvement can be hastened. Tilling soil to work the organic matter more deeply into the soil in the early stages of development also speeds the development of a good growing medium from poor soil.

In closing, it is important to be patient since it takes time to accomplish the transition of creating topsoil out of subsoil or, "turning lemons into lemonade."

Bookkeeper Personal Contract Solicitation

Franklin County Extension Service Office (FCES),
101 Lakeview Court, Frankfort, Ky
Phone (502) 695-9035
Fax (502) 695-9309
mackenzie.preece@uky.edu.

Bids must be received in the Extension Office on or before 4:30pm September 15, 2023.

Scan the QR code for more information

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Full agenda and registration details coming soon
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Reasonable accommodations for individuals with disabilities will be provided free of charge upon request. Language access services for limited English proficient individuals will be provided free of charge upon request. Please contact Kasia Bradley at kasia.bradley@kysu.edu by September 15, 2023.

Milkweed Beetles

By Joyce Fry

What prompted me to research milkweed beetles was the failure to thrive status of my swamp milkweed (*Asclepias incarnata*). Last year I did notice that something was a little amiss with it, although it was surprisingly robust for its second year. The plant grew to a height of just under 4 feet with stalks bearing numerous clusters of dazzling pink flowers and spreading to a diameter of about 3.5 ft. But a few leaves here and there drooped. Because the plant was so productive, I didn't examine it, and besides, the plant had hosted at least 21 monarch caterpillars. This year, however, the plant has vastly underperformed, as it never grew to more than about a foot tall and its uppermost leaves drooped at that height. Alarmingly, it didn't produce any buds. Finally, I realized that it had a serious problem. Upon close inspection of one of the drooping leaves with a triplex hand magnifier, it became clear that the spots on the petiole beneath the wilted section of the leaf were holes. With the naked eye, one might've mistaken them for scale or some other tiny insect. Adam Leonberger, Franklin County Extension Agent, stated that the damage was most likely caused by a red longhorn milkweed beetle (*Tetraope tetrophthalamus*). Of the 12-15 species of milkweed longhorn beetles in the United States, only three species are found in the east, all in the Genus, *Tetraope* (pronounced "te truh ope," with the "o" pronounced as a long vowel). The genus name is Latin for "four eyes," as does the species name, *tetrophthalamus*. There are only two, but each eye is divided by an antenna, so it appears to have four. Besides for *T. tetrophthalamus*, which is the most common of the trio, there is a blackened milkweed longhorn beetle (*T. melanurus*) and a red-femured milkweed longhorn beetle (*T. femoratus*). As their common name implies, milkweed plays a prominent role in their life cycle.

Beetles undergo complete metamorphosis i.e., egg, larva, pupa and adult. The female adult milkweed longhorn beetle lays her eggs near the base of a milkweed plant in the spring. As a larva, known as a round-head borer, it eats through the plant stem or roots, leaving a tunnel behind in which it overwinters. In the spring, the larva pupates in the tunnel, emerging as an adult in summer just as the buds and flowers appear. The milkweed beetle adult feeds upon them as well as the plant's leaves. The holes? By biting a hole in the leaf vein below where it is feeding, the latex will drain out and not gum up its mouthparts! Ingenious!

Red Longhorn Milkweed Beetle

I also found that there is a swamp milkweed leaf beetle (*Labidomera clivicollis*), which also cuts a hole in the leaf before feasting, and this one is particularly fond of swamp milkweed. All milkweed beetles are beautifully and stunningly marked with bright red, orange or yellow colors

and black or dark blue spots. The prominent bright colors serve as a warning to would-be predators that they taste bitter, which is due to the cardiac glycosides they ingest from feeding on milkweed. This warning is called "aposematism," and can also be observed in monarch butterflies (*Danaus plexippus*) and its close look alike, the viceroy butterfly (*Limenitis archippus*) as well as the milkweed bugs (*Oncopeltus* spp.). In fact, there are at least 100 insect species that exhibit this trait, which is advantageous to both predators and prey.

Now, what to do? My options are limited. Pesticides are off the table; besides killing beetles, they would kill monarch butterfly larvae and other unintended insects. Other options I have found include dousing them with soapy water, spraying them off with a hose, or hand-picking. I haven't seen any beetles, so those options are out, too. One article I found suggested planting additional swamp milkweeds nearby. That can work over time because insects experience boom and bust cycles. "Booms" in an insect population occur when weather and food availability are favorable to their population growth. Conversely, when conditions are less favorable, the insect population "busts." If the beetles prefer swamp milkweed, it is likely that next year will be a bust, at least in my garden, because that is the only swamp milkweed nearby. Meanwhile, I'm just enjoying the rest of the plants in my gardens, including the orange, common and whorled milkweeds (*A*. *tuberosa*, *A*. *syriaca*, and *A. verticillata*, respectively).

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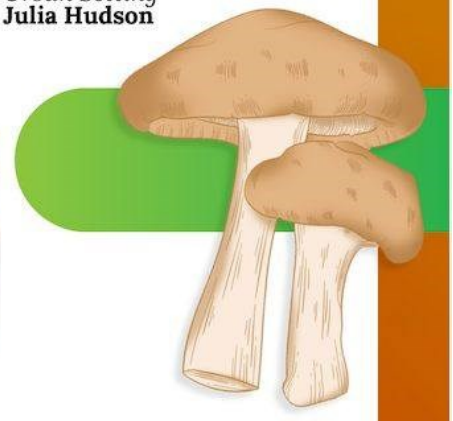

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Air Fried Okra Tots with Tangy Dipping Sauce

- **12 ounces** okra stalks
- **2 tablespoons** olive oil
- **2 tablespoons** salt-free seasoning

Tangy Dipping Sauce:

- **1 cup** plain low-fat yogurt
- **3 tablespoons** mayonnaise
- **1 tablespoon** dried parsley
- **2 teaspoons** dried dill
- **1 teaspoon** garlic powder
- **1 teaspoon** onion powder
- **1/2 teaspoon** salt

Wash hands with warm water and soap, **scrubbing** for at least 20 seconds. **Cut** the ends off the okra. **Cut** the okra into 2-inch (tater tot sized) chunks. In a large bowl, **place** the cut okra, olive oil, and seasoning. **Toss** to coat. **Add** to the basket of your air fryer in a single layer. Depending on the size of your air fryer, you may need to cook in batches so the okra is in a single layer, which allows air to circulate and okra to be crispy. **Cook** at 350 degrees F for 10 minutes or until crispy, tossing halfway through. While the okra cooks, **prepare** the sauce by **mixing** all of the ingredients in a small bowl. **Refrigerate** the sauce until ready to serve. **Serve** okra tots with tangy dipping sauce. **Store** leftovers in the refrigerator within two hours.

Yield: 5 servings. **Serving Size:** 1/5 of recipe. **Nutrition Analysis for Okra Tots with Tangy Dipping Sauce:** 170 calories, 13g total fat, 2.5g saturated fat, 10mg cholesterol, 330mg sodium, 14g total carbohydrate, 2g fiber, 4g total sugars, 0g added sugars, 4g protein, 0% DV vitamin D, 10% DV calcium, 6% DV iron, 8% DV potassium. **Nutrition Analysis for Okra Tots (no sauce):** 70 calories, 6g total fat, 1g saturated fat, 0mg cholesterol, 0mg sodium, 10g total carbohydrate, 2g fiber, 1g total sugars, 0g added sugars, 1g protein, 0% DV vitamin D, 4% DV calcium, 0% DV iron, 6% DV potassium.

Plate it up! Kentucky Proud

Adam Leonberger

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