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The Sweet Story of Strawberry Success

BY ANDREW HOLSINGER

Nothing beats the taste of strawberries ripened to perfection in your backyard. Strawberry cultivars are separated into three distinct plant types based on their response to photoperiod (hours of sunlight received per day): June bearers, everbearers, and day-neutrals.

Strawberry plants tolerate many soil types but often do well on light-sandy soil with high organic matter. In choosing where to plant, avoid sites that are flat, low-lying, or poorly drained. Good water and air drainage will boost your success, as strawberries don't tolerate "wet feet." Select a site with some elevation and a slight slope—the higher ground will promote cold air drainage to afford some frost protection. Planting in a raised bed will help avoid standing water in the bed.

Once you have selected a site, obtain a soil test to check nutrient levels and pH, sampling the soil six to eight inches deep. Recognize that it takes time to adjust soil pH; if adding lime or sulfur is recommended based on the soil test, it will need to be applied well before planting.

For the best yields, plant in full sun. Do not plant strawberries where peppers, tomatoes, eggplant, and potatoes have been grown, as these plants can harbor *Verticillium wilt*, a serious strawberry disease.

Weeds, especially perennial weeds, can be troublesome in a strawberry patch. Preparing the soil a year or two in advance may help.

What about varieties? Those suggested for Illinois June-bearing strawberries are Earliglow, Honeoye, Allstar, and Jewel. Suggested day-neutral varieties are Seascape and Albion, and suggested ever-bearers are Ozark Beauty and Ogallala. Selecting the best possible cultivar is vital to your success; be aware that each cultivar may have different management strategies.

It is critical to plant strawberries at the proper time (in Illinois, that means April if soil conditions allow) and the



There is little better than the sweet juiciness of a strawberry picked from your own garden. Photo courtesy of Bronwyn Aly.

proper depth. Place plants in the soil so that the root system spreads out. Barely cover the roots with soil at the point where they originate from the crown. If the crown is covered or the roots are exposed, the plant will do poorly or die. Plants need to be watered in the planting hole or immediately upon planting. Waiting for rain to provide the irrigation is a common mistake.

Strawberries require a consistent supply of water. Mulching has the benefit of reducing weed competition and conserving moisture. When adding mulch, be sure not to use one infested with weeds. Straw is commonly used, but it must be placed over plants for winter protection before damage occurs. Removal of straw in the spring must be timely as weather allows to avoid plant injury from late spring frosts.

Remember to remove all flowers from strawberry plants the first year to allow them to produce runner plants for next year.

Use exclusive techniques to keep pets, deer, birds, and other animals away from your strawberries so you can enjoy as many sweet, juicy strawberries as possible.

Growing Vegetables in Raised Beds

BY KARI HOULE

Why a raised bed to grow vegetables? Poorly draining or compacted soils, physical limitations of the gardener, and high lead concentration in the soil are a few reasons you may not want an in-ground garden. Raised-bed gardening can be a great option, but it has both advantages and disadvantages.

Advantages

- *Easier maintenance.* The higher the bed, the less bending is needed. You can have more intensive plantings, which also means fewer weeds. Those weeds that do pop up are easily pulled.
- *Improved soil quality and drainage.* A well-designed raised bed holds a good quality mix of soil and compost, optimizing root growth and promoting drainage.
- *Higher yields.* Improved soil conditions allow for higher yields and for planting more intensively.
- *Longer growing season.* Soil warms more quickly in spring in a raised bed, and you can use low tunnels to extend the season even longer.

Disadvantages

- *Expense.* There is an initial outlay for creating a raised bed.
- *Increased watering in summer.* Raised beds often dry out faster in summer (but drip irrigation or soaker hoses can help).

To build a raised bed, start with quality materials. Rot-resistant wood (including cedar and redwood) is a great choice, but it does cost more than alternatives like pine. Both types will degrade over time, but rot-resistant wood lasts much longer. You can also use pressure-treated lumber that uses ACQ (alkaline copper quaternary). Avoid using railroad ties treated with creosote or CCA-pressure-treated lumber. There should be a tag on the lumber telling you what it's been treated with. Non-wood options include composite plastic lumber, bricks, and concrete blocks.

A bed accessible from both sides should be no wider than 4 feet; if it is only accessible from one side or is designed for wheelchair users, limit the width to 3 feet. The bed can be as long as you wish, but shorter beds are easier to navigate. Beds should be 6 to 12 inches deep at a minimum, and of course a deeper bed better accommodates root growth. Beds longer than 6 feet or deeper than 18 inches should be reinforced (with anchored stakes, cross-cables, or similar methods) to account for the weight of the soil and to prevent the sides from bowing out.



Photo courtesy of Andrew Holsinger.

There are various choices for preparing the site for your raised bed, from tilling the soil underneath (after removing turf or existing vegetation) and tilling in some of the raised-bed mix to blur the differences in the native and added soil. An alternative is to spread newspaper on existing soil, build the bed, then add the soil mix. You may be able to buy a ready-made bed mix in bulk, or you can make your own by combining 50/50 top soil and compost or 60/30/10 top soil, compost, and soilless mix.

Almost anything you can grow in the ground you can grow in a raised bed, though sprawling vegetables, including squash and pumpkins, are still better suited to an in-ground garden. Any crop that needs a trellis or other support, like tomato, will still need that help in a raised bed.

Add compost to your raised garden in the fall to further improve the soil quality. Also, have your soil tested once every few years to check the pH and nutrient levels so that you can implement effective fertilization practices.

Organic-Based Soil Fertility: A Primer

BY CHRISTOPHER ENROTH

Before diving into the enriching world of organic soil fertility, we must specify what “organic” means in this context. From the standpoint of chemistry, *organic* refers to molecules containing carbon. These carbon-based compounds make up the building blocks of life on Earth and pass from one living organism into another. This cycling of carbon is the basis for how captured energy from sunshine cycles through our living ecosystems. The materials I discuss below as organic-based are derived from living or once-living organisms or their wastes.

On the other side of the coin are synthetic fertilizer products, which fall in the realm of inorganic chemistry. Synthetic fertilizers are very effective at delivering nutrients to plants. Inorganic fertilizers are often cheaper than organic-based products, and they are designed to meet consumer needs.

A debate over synthetic versus organic rages on in the gardening world, with many homeowners, gardeners, and landscapers switching from synthetic to organic-based soil fertility amendments. Are you trying to kick the synthetic fertilizer habit, but don’t know where to turn? The remainder of this article discusses your options in organic-based soil amendments and their pros and cons.

COMPOST

Ultimately compost, first-place among soil amendments, cannot do much wrong. Though compost offers little in plant nutrients compared with other types of amendments, it does affect soil biology by adding beneficial bacteria and fungi. Compost also adds protein to fuel the biological processes of soil-dwelling micro- and macroorganisms. Compost can be made up of decomposed yard waste, such as leaves and grass clippings, or of castings from a vermicomposting (worm) bin.

Pros

- It recycles products otherwise seen as waste.
- Compost won’t burn plants.
- It builds soil structure and organic matter.
- For most landscape settings, an annual application of ½ inch of compost is all the plants will ever need. (But remember to have your soil tested to reveal any nutrient deficiencies.)

Cons

- Compost is expensive.
- Regarding plant nutrients, compost doesn’t offer much bang for the buck.
- Compost isn’t enough for most vegetable gardens, which will need to be supplemented with additional fertilizers due to a higher demand for soil nutrients (mainly nitrogen).
- Any material in the compost that hasn’t broken down can tie up soil nitrogen after application, stunting plant growth. (This depends mostly on the type of composted material and if it is incorporated into the soil.

COMPOSTED MANURE

The reality of animal wastes, which can carry human pathogens, sets composted manure apart. Composted manures are often marketed based on which species generated the product. Need a high-nitrogen source? Try composted horse or chicken manure. Manures must always be composted before being applied to a landscape or garden—human pathogens, including *E. coli*, can live in uncomposted manure for 21 months!

Pros

- Like compost, composted manure adds protein to the soil, much to the delight of soil-dwelling organisms.
- It uses a material otherwise viewed as waste.
- Composted manure adds organic matter and builds soil structure.
- Composted manure is often easier to find and cheaper than yard waste or commercial compost.

Cons

- Manure can harbor human pathogens.
- Different animal species produce different nutrient levels in their manure, which may lead to an off-balance of soil fertility if composted manure is overapplied.
- Composted manure is often full of water and can be heavy.
- Manure from grazing animals contains weed seeds.

ORGANIC-BASED FERTILIZERS

Byproducts from various manufacturing processes, such as bone meal, blood meal, alfalfa meal, corn gluten meal, milorganite, and fish emulsions, make up most organic-based fertilizers. These products are applied more like a traditional fertilizer.

Pros

- Organic-based fertilizers often make use of a byproduct of a manufacturing process.
- They provide protein to soil-dwelling organisms.
- Their long-term, slow-release properties are helpful in preparing landscape or garden beds.

Cons

- Plants are slow to respond to applications of organic-based fertilizers (usually longer than most homeowners are willing to wait).
- Just like with synthetic fertilizers, you can overfertilize with these—follow the label!

COVER CROPS

Cover crops, in which a single species or mix of species is often sown on bare soil before any planting, are gaining popularity, especially among people with large acreage or low-maintenance landscapes. My local municipality has used Daikon radish cover crops with success when planting street trees in compacted urban soils.

Pros

- Crop plants improve soil structure and add organic matter.
- Cover crops reduce erosion on bare soils and can act as a mulch when winter-killed or mowed.
- Compared with compost for use in large areas, cover crops are typically less expensive.
- Some cover crops, such as annual black-eyed Susan or cosmos, have ornamental appeal.

Cons

- Using a cover crop to amend the soil takes time; not every homeowner will want, say, a cover crop of clover in the yard for several months before seeding the lawn.
- Timing is critical; if a cover crop isn't cut before it goes to seed, a beneficial crop may become an unwanted weed.

A soil test, to reveal whether soil has any nutrient deficiencies, is essential whatever your choice of fertilizer type. If nutrients do not need to be applied, you can help the environment and save money by not using excessive fertilizers.

Kitchen-Scrap Gardening

BY BRITTNEY HAAG

Consider skipping the compost bucket or garbage can this winter and regrowing your leftover veggies and fruits for beautiful houseplants, kitchen window displays, and future garden additions. Kitchen-scrap gardening is a great way to reinforce the concepts of recycling and reusing while experimenting with leftover plant parts.

These three produce items can be regrown with a little water and patience:

Avocado. After enjoying a delicious ripe avocado, clean the seed and remove the seed coat (the thin brown layer). Find the pointed top of the avocado seed, then insert three toothpicks into the top third of the seed, spacing them equally. Place the seed in a glass of water, resting the toothpicks on the edge of the glass with the water touching the bottom of the seed. Change the water every couple of days. Watch for roots and sprouts to appear (this may take a month or so). Once roots have filled the glass and shoots are six to eight inches tall, the seed can be planted in a container of potting soil. During summer months, your new avocado plant can be set outside, but bring it back inside if temperatures dip below 45 °F. While a tree as tall as five feet tall may grow from your seed, fruit may take three or more years to develop, and if it does it will be much smaller than what you buy at the store.

Pineapple. Start with a ripe pineapple with healthy, green leaves. Slice the fruit half an inch below the cluster of leaves and remove the rind and remaining fruit, leaving the tough core attached to the leaves. Expose about an inch of the stalk by pulling off a few of the lower leaves. Allow the top to dry for a week, then plant it one inch deep in a mixture of peat, sand, and perlite. Place the container in bright, indirect light, and keep the soil moist, but not soggy. Roots should develop in six to eight weeks. Place the plant outside during periods of frost-free weather. Fruit will develop in two to three years.

Celery. The next time you prepare a head of celery, plan ahead to grow it again. Cut through the stalk about two inches above the bottom. Place the base in a shallow bowl with one inch of water, and maintain the water level at all times. Change the water every day to keep it fresh. Roots and leaf growth from the center of the celery will appear in a few days. After two to three weeks, the base is ready to be transferred to a planter of potting soil; cover it completely except for the center leaf tips. Other plants that be regrown in a similar manner include lettuce, bok choy, cabbage, and greens of carrots, turnips, radishes, and beets.

Growing plants from leftovers can be fun and rewarding, but the process does take some patience. Realize that commercial production of vegetables and fruit involves complicated processes (like grafting) and that what we regrow at home may not match the aesthetics of what is in the store. Hopefully, these green thumb experiments with plants will leave you wanting to try new things in your garden. Recycle, reuse—and regrow!



The start of regrowth from the bottom of a celery stalk.



A new celery plant arising from a regrown and transplanted stalk.



A mass planting of allium 'Millenium.' Photo courtesy of Walters Nursery.

'Millenium' Allium—2018 Perennial Plant of the Year

BY MARTHA SMITH

Allium 'Millenium,' named Perennial Plant of the Year for 2018 by the Perennial Plant Association, is an herbaceous perennial—a workhorse of the late summer garden—and relative of the common onion. The plant was bred by Mark McDonough, horticulture researcher from Massachusetts, and introduced through Plant Delights Nursery in 2000; it has proven itself year after year, earning rave reviews. (The spelling, though, raises questions. The name is often spelled 'Millennium,' the correct spelling for the turn of the century, but the plant was apparently registered under the name 'Millenium'.)

'Millenium' is the result of a multigenerational breeding program involving *Allium nutans* and *A. lusitanicum*, selected for late flowering with masses of rose-purple blooms, a uniform growth habit with neat shiny green foliage that remains attractive all season, and drought-resistance.

The genus *Allium* contains over 900 species of bulbous plants, but it is perhaps best known for a dozen or so species that comprise the culinary vegetables and herbs: onion, garlic, leeks, shallots, scallions, and chives. The genus is also known for a few dozen ornamental flowers that grow from bulbs and sport tall stems with big globe-shaped blooms in spring.

Allium 'Millenium' grows best in full sun; each bulb typically produces a 10- to 15-inch upright foliage clump of grasslike, glossy deep green leaves. In midsummer, two or three flower scapes appear from each bulb rising above the foliage, with each scape producing two to three showy two-inch spherical umbels of rose-purple florets for up to four weeks. The flower umbels are completely round, not domed. They dry to a light tan, often holding a blush of their former rose-purple color.

While other *Alliums* can look scraggly in the heat of the summer, 'Millenium' isn't bothered by the heat. Easily grown throughout Illinois, in very hot summer climates, 'Millenium' does appreciate afternoon shade.

No serious pest problems have been reported other than bulb rot, which may occur in wet soils. Deer and rabbits leave 'Millenium' alone. Some *Alliums* reseed, but with 50 percent reduced seed production, 'Millenium' has less potential for self-seeding than some of its relatives.

Allium 'Millenium' has true bulbs attached to a short, stout rhizome, forming an ornamental herbaceous clump that is easily propagated by division. Once in the garden, 'Millenium' can be lifted and divided in either spring or fall. Cut back foliage in late fall.

Butterflies and bees will thank you for adding 'Millenium' to your garden. Pair it with shorter goldenrods (*Solidago* sp.), such as 'Little Lemon,' which reaches one-and-a-half feet tall. Goldenrods are late-summer pollinator magnets that will offer beautiful contrasting golden yellow blooms. *Allium* 'Millenium' also looks great backed with the silver foliage of *Perovskia atriplicifolia* (Russian sage) or the native *Scutellaria incana* (Downy skullcap), with its numerous spikes of blue flowers above green foliage. Or simply plant en masse and enjoy the rose-purple display!

This dependable, low-maintenance perennial will not disappoint. Blooming at a time when most of the garden begins to decline in the tired excess of the season, 'Millenium' offers much-needed color. It is truly an all-season plant offering attractive shiny foliage spring through summer and capping off the season with its crown of perfectly round, rose-purple flower umbels.



A yellow swallowtail visits an allium 'Millenium.' Photo courtesy of Plant Delights Nursery.

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The Super-Cool Leaves of Vegetable Greens

BY KELLY ALLSUP

Which garden green is your favorite? Extension's Local Foods and Small Farms educator Bill Davison proclaims that "kale is at least 30 to 40 percent cooler than broccoli," citing the ease with which it is grown and how ornamental it can be. But I (a horticulture educator and Bill's colleague) would counter that Swiss chard and beet greens are the real rock stars of the garden. The greens are a delectable early-season treat for my family; they're easier to grow than broccoli, and we think they taste better.

Kale, a cool-weather crop in the same family as broccoli, cauliflower, and kohlrabi, is harvested for its abundant, large, textured leaves. It can be planted in early spring or late summer, and the plants grow three to four feet tall. The outer leaves are harvested while they are tender and young, leaving the plant looking like a palm tree.

You can grow kale from seed or transplants. Kale transplants can go into the garden, 18 to 24 inches apart, three to four weeks before the average last frost date in the spring. Seeds started indoors in early spring can be ready for planting in five weeks. It is best to harden the seedlings by gradually placing them outside in full sun. Kale will benefit if you spread compost before planting as well as a layer of mulch to conserve moisture. Kale should be grown in full sun.

A popular cultivar is 'Lacinato Rainbow,' known for its vigorous, curly dark leaf with pink veins and greater cold hardiness than many varieties. After spring planting, kale can be planted again in late summer to early fall for a second crop. In fact, the taste is better after a light frost.

Swiss chard, another garden green, is actually a beet selected for its bright and colorful leaves, sold in packs as an ornamental cool-weather annual. "Bright Lights" is the standard-bearer for multicolored Swiss chard varieties. Swiss chard can be planted as soon as soil is workable and above 40 degrees F, and it is harvested similarly to kale. If you are growing Swiss chard for baby leaves, start from seed and harvest the entire plant when it is three inches tall. If you desire a continual harvest, start with a transplant and remove the outer leaves as the plant continues to grow.

Like Swiss chard, you can plant beet seeds as soon as the soil is workable and above 40 degrees F; you can plant them as late as the middle of July. Seeds should be thinned to three or four inches, and you can eat the small seedlings you pull. No more than a third of the greens should be harvested from the beet plant while it is producing its deep red orb. Succession planting every week or two allows you to harvest throughout the growing season.



Noah and Ben Davison harvest the lower leaves from kale plants. Photo courtesy of Bill Davison.

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