August 2018 - Vol. 4 No. 8

Table of Contents

The Ornamental Garden in August

By Susan Martin | August 2018 - Vol. 4 No. 8

Don’t let this beautiful month of summer slip too soon into fall, even though the stores are stocking plastic pumpkins and the candy aisles are screaming “Boo!” It’s still summer, and our Zone 7 gardens are still producing new and beautiful blooms. Late-summer-blooming perennials, and perennials that continue to bloom through late summer, offer both the brushstrokes of vivid July and the early tones of more autumnal hues:

- purple and pink native **aster**
- orange and burgundy **chrysanthemum**
- purple passionflower (*Passiflora incarnata*)
- bluish/lavender **Russian sage** (*Perovskia atriplicifolia*);
- **blue mist shrub or bluebeard** (*Caryopteris x clandonensis);*
- lavender-blue **giant hyssop** (*Agastache ‘Blue Fortune’)*
- lavender-to-purple **anise hyssop** *(Agastache foeniculum)*
- orange, pink, yellow, purple and magenta ***Agastache hybrids***; **sunset hyssops** (*Agastache rupestris*) in bronze, salmon, orange and yellow, with hints of purple and deep pink
- **Joe Pye weed** (dusty rose *Eutrochium fistulosum* and mauve purple *E. purpureum)*
- *bright yellow* ***sneezeweed (****Helenium autumnale and Helenium virginicum)*
- yellow **tickseed** (*Coreopsis tripteris*)
- golden, russet, or lemon yellow **sunflowers** (*Helianthus annuus*)
- red, pink, and white **cosmos** (*Cosmos bipinnatus*)
- red, white, purple, orange, and pink **autumn sage** (*Salvia greggii)*
- flame red **canna lilies,** also orange, pink, yellow, cream, and bicolors
- big-color, big-headed **dahlias** that last until first frost

TASKS

WEEDING AND WATERING–ALWAYS

To keep gardens looking their best, there are always the **general tasks of weeding and watering; watering is especially important to keep plants healthy and strong before they go dormant.** There are also the **month-sensitive tasks** that require special attention.

FERTILIZING

Continue to **fertilize container plantings and annuals.** Always water the bed after applying fertilizer, or, if feeling lucky, apply before a predicted rain. This will wash the fertilizer off the foliage and prevent burn. It will also make fertilizer available to the plants immediately.

DO NOT fertilizes trees and shrubs. A late summer fertilization could promote a spurt of tender growth that would make the plant vulnerable to the rigors of winter. Perennials should not be fertilized in late summer for the same reason.

DEADHEADING BLOOMS

Deadheading is not a month-specific chore, but there seems to be a lot of deadheading at summer’s end as we try to encourage that last colorful hurrah.

As flowers shed their petals and begin to form seed heads, energy is focused into the development of the seeds, rather than the flowers. As soon as they are allowed to set seed, chemical messages are sent back telling flower production to stop. Removing old flowers before they produce seed will keep plants blooming longer. The best time for deadheading plants is just before the blooms die back completely, i.e., as soon as

the flowers begin to fade, wither, or turn brown. Pinch or snip the wilted bloom, along with the stem, down to the next leaf, stem or bloom.

Examples of August-blooming plants that benefit from deadheading include: *Agastache* (giant hyssop, anise hyssop, and agastache cultivars), asters, dahlias, marigolds, *salvia greggii*, Shasta daisies (*Leucanthemum* x *superbum*) and zinnias (*Zinnia elegans*). If you are pinching off spent canna blooms, be careful. New buds usually form right next to the spent flowers. Some canna lilies produce big black seed pods, while others are sterile. Watch to see if seed pods develop. If they don't, deadheading the flowers isn't necessary, except for aesthetics.

SEEDS AND NECTAR FOR BIRDS

August is a busy month in the garden for birds happily searching for natural seed sources. As the flowering season approaches its end, leave the remaining seed heads in place. The most popular seed-bearing flowers for backyard birds include many of the late-summer blooming flowers listed above: asters, black-eyed Susan (*Rudbeckia hirta)*, coneflowers (*Echinacea purpurea*), coreopsis, cosmos, daisies, giant hyssop, marigolds, sneezeweed, sunflowers, and zinnias. Hummingbirds are especially attracted to the bright red of autumn sage (*Salvia greggii 'Red Swing', 'Hot Lips', and 'Flame')*. Salvia's nectar-rich flowers attract a wide range of pollinators including honey and native bees, butterflies, and hummingbirds.

Salvia hybrida® Arctic Blaze Purple

Salvia greggii 'Red Swing'

CUTTING BACK

Cutting plants down to the ground for winter should be done later in the season in September/October, but maintenance trimming can be done now.

Some plants are particularly **susceptible to powdery mildew**. Trim back diseased parts now and bag; do not add to compost. Plants that are especially prone to powdery mildew include: phlox (*Phlox paniculata*), peony (*Paeonia*), beebalm (*Monarda didyma*), sneezeweed (*Helenium autumnale* and *Helenium virginicum*), and *Zinnia elegans*.

Certain plants do not like to be cut to the ground before winter because the foliage protects their crowns. If the leaves are looking spent or limp, or are riddled with insect or slug holes, trim the leaves but don't cut to the crown. Plants that like some winter foliage protection include: butterfly weed (*Asclepias tuberosa)*, chrysanthemums, coral bells (*Heuchera sanguinea*), Siberian bugloss (*Brunnera macrophylla*), *Salvia x sylvestris*, lungwort (*Pulmonaria*), bearded penstemon *(Penstemon barbatus*) and catmint (*Nepeta*).

Clean up in spring.

Consider cutting the stems of **Shasta daisies** back to the basal leaves after flowering to preserve plant energies and perhaps extend the life of this somewhat short-lived plant.

Evergreen perennials such as certain ornamental **sedges** are not cut back in fall; remove dead foliage in spring and summer.

DIVIDING PERENNIALS

Irises and daylilies are best divided in summer, after they flower up to the end of August; keep moist throughout the fall.

Other spring- and summer-blooming perennials can be divided in September/October; allow at least 4-6 weeks before the first average frost. The first average frost date in Charlottesville is November 1-November 10.

PLANNING AHEAD

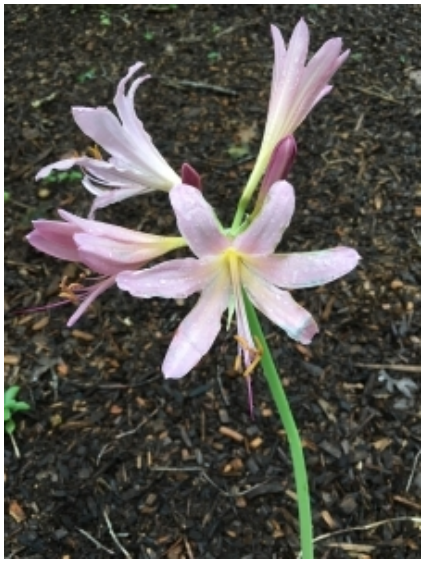
When admiring your August garden, you should also make notes on what to improve for next year. Which plants did especially well, which did not? Are there any spaces that need to be filled? Remember to add some kind of marker to highlight those spaces next spring. Look at the overall color palette. Should you add more plants of the same color for a more concentrated presence, or should you add different colors for contrast? Does the garden design include plants of varied heights and textures? Review any notes you took from visiting other gardens and see where you could incorporate new ideas. Take photographs to illustrate your notes. What seems obvious now can be a hazy memory next spring!

BULBS

It will soon be time to plant spring-blooming bulbs. Consider ordering now to assure the best selection. See the October 2015 issue of *The Garden Shed*, Spring-Flowering Bulbs, for ideas.

Fall-blooming bulbs from the ***Colchicum*** group, **autumn crocus**, should be **planted in August** for bloom in September to October. Autumn crocus is so named because most varieties bloom in fall (although some bloom in late summer). Plants send up somewhat unattractive foliage (4-6 dark green leaves) in spring that gradually yellows and dies by summer when the plants go dormant. Naked flower stems rise from the ground to 6-10″ tall bearing pink-to-lavender-pink star-shaped flowers. Spring crocus is in the Iridaceae (iris) family, but autumn crocus is in its own family, Colchicaceae.

Lycoris squamigera, resurrection lily or naked lady, is a fall-blooming bulb from the amaryllis family (Amaryllidaceae). The leaves sprout in the spring, then die back during June; thick, naked flower scapes rise to 2’ tall in late July to August. Each stem bears 4-7 funnel-shaped fragrant flowers that are rose-pink tinged with lilac. Plant bulbs in the fall.



Lycoris squamigera, Naked Lady or Resurrection Lily

LAWN WEED TREATMENT IN FALL

Broadleaf annual weeds: Seeds germinate from late summer through fall. Weeds over-winter and continue to grow in early spring. Control with

a broadleaf **postemergent herbicide** applied when the weeds are actively growing in the spring. The exception is **common chickweed** (*Stellaria media)* which can also be controlled with a broadleaf **preemergent herbicide applied in early to mid-September** before it germinates**.**

Perennial weeds: The largest group of weeds, these are persistent from year to year. They reproduce by seed and also by vegetative means. They range from weeds that are easy to eliminate, to some of the most difficult to control. Treat with a broadleaf postemergent herbicide applied when the weed is actively growing. **For difficult-to-control weeds such as creeping Charlie** (*Glechoma hederacea*), **both a spring and fall application of a postemergent herbicide is often necessary.**

Grassy winter annual weeds: Seeds germinate in late summer to early September. Control with a preemergent herbicide applied in early September before the seeds germinate. **Annual blue grass** can be treated this way. **If herbicides are applied in the fall, you will not be able to sow grass seed in the fall.**

Herbicides should be considered an aid, but not a cure for broadleaf weed problems in lawns. The presence of weeds indicate conditions that are not conducive to a healthy lawn. Such conditions include: close mowing, improper watering, poor drainage, compacted soil, too much or too little lime or fertilizer, insect and disease damage, and too much shade. Spot-treating with a liquid herbicide appropriate to the type of weed is also effective. Do not apply insecticides on a breezy day, or during the day when insects are active. Hand pulling is an option when weeds are not too numerous or when gardeners wish to avoid using herbicides. Try to get all the roots and runners, bag, and discard. Covering larger weedy areas with heavy cardboard to block sunlight is another non-chemical option.

Invasive Japanese Stiltgrass (*Microstegium vimineum*): **In August,** mowing and weed-whacking can greatly reduce stiltgrass seed formation. Flowering begins any time from July into October, and seeds ripen and drop to the ground from August to December. Mowing is best done just before flowering in August and September, and needs to be done only once if you wait until then. Cut stiltgrass as low as possible, scalping the ground, to remove all flowers.

(Treat Japanese stiltgrass in early spring with a preemergent, without nitrogen fertilizer. Look for the active ingredient: *Prodiamine* (Barricade) or other preemergents labeled for crabgrass control. Stiltgrass seed germinates a couple of weeks before crabgrass seed germinates.)

Note: Follow the highlighted links for preemergent and postemergent herbicides to the University of Maryland Extension site for weed identification with photos as well as recommendations for weed-specific herbicides. Additional weed treatment sites are included in the Source list.

INVASIVE HIGHLIGHT

The invasive plant for this month is **autumn olive** (*Elaeagnus umbellata)*. This nitrogen-fixing, deciduous shrub has multiple trunks and dense branching and can grow to 10-16′ tall and 20-30′ wide. In spring, it leafs out before most native vegetation, and its new leaves are bright silver. Leaves mature to olive-green with silvery undersides. The leaves are alternate on the stems, and vary from narrow-to-wide ovals. The stems are speckled, silver or golden brown, and often thorny. In spring, the shrub produces a profusion of small, fragrant, four-petaled, creamy-to-pale-yellow tubular-shaped flowers. Oval-shaped, **single-seeded fruits ripen to a dull-to-bright red** dotted with tiny silvery speckles **in August and September,** aiding identification.

Autumn Olive (Elaeagnus umbellata), Wikimedia

Autumn olive with fall berries: Lazaregagnidze – Own work

Autumn olive in spring flower: KENPEI, Wikimedia

The primary eradication method is to prevent seed production and dispersal by killing or cutting back autumn olive shrubs by mid-July. However, autumn olive can be controlled at any time of year, except during spring growth, by cut-stumping. Cut or saw all stems to several inches from the ground and immediately spray cuts with a concentrated recommended herbicide or a ready-to-use stump killer. Watch for resprouts; cut and treat all new stems or apply a foliar herbicide spray to the new foliage. Cutting down autumn olive without applying herbicide only increases the number of stems that sprout from its crown and roots. Seedlings and young autumn olive shrubs can be hand-pulled or dug if the population is not extensive. Digging larger plants is problematic because they resprout from any roots left behind. See the PRISM website (Partnership for Regional Invasive Species Management) for more information.

GENERAL INFORMATION TIP: There is an **online site that searches by topic** from Cooperative Extension Sites around the country. Just make sure that the information is appropriate to Zone 7 if climate affects your question. https://search.extension.org/

SUMMARY

There is still so much to enjoy in the final “school vacation” month of summer. The August palette is changing naturally over to autumn hues. In some respects, August is a month for “procrastination without guilt” for the ornamental gardener! It’s too early to divide most perennials; too early to mulch; too early to plant spring bulbs; too early to sow fall seeds; and too early to rake leaves! What we can do is water, weed, deadhead spent flowers, trim spent or diseased foliage, fertilize annuals and container plantings, divide

irises and daylilies, and plant autumn crocus. We can also mow or weed-whack invasive Japanese stiltgrass low to the ground to remove the flowers, and cut down invasive autumn olive and treat with an herbicide. But, once the chores are done, make sure to spend some time in the hammock or on the patio, enjoying the beautiful late-summer blooms and the birds attracted to their seed heads.

SOURCES

"Avoid the Coneflower Blues,"
https://www.pdxmonthly.com/articles/2011/8/23/avoid-the-coneflower-blues-august-2011

"Sunset Hyssop Information: How to Grow Sunset Hyssop Plants,"
https://www.gardeningknowhow.com/edible/herbs/hyssop/sunset-hyssop-information.htm

"Fertilizing established perennial gardens – Feed'em and weep,"
http://msue.anr.msu.edu/news/fertilizing_established_perennial_gardens_feed_em_and_weep

"What Plants Should You Deadhead?"
https://www.telegraph.co.uk/gardening/gardeningadvice/11075040/What-plants-should-you-deadhead.html

"Off With Their Heads: Deadheading Perennials,"
https://www.finegardening.com/article/off-with-their-heads-deadheading-perennials

"Lawn Weed Identification," https://extension.umd.edu/hgic/lawns/lawn-weed-identification

"Broadleaf Weed Control in Established Lawns,"
https://extension.umd.edu/hgic/lawns/control-options#preemergent

"Weeds as Indicators," https://hgic.clemson.edu/hot-topic/weeds-as-indicators/

Partnership for Regional Invasive Species Management (PRISM), http://blueridgeprism.org/factsheets/

"Perennials: Dividing," https://www.rhs.org.uk/advice/profile?PID=363

Plant Finder, http://www.missouribotanicalgarden.org/plantfinder/plantfindersearch.aspx

Topic Index for Cooperative Extension Sites, https://search.extension.org/

Virginia Average First Frost Date Map,
https://www.plantmaps.com/interactive-virginia-first-frost-date-map.php

"Spring-Flowering Bulbs," http://pmgarchives.com/article/spring-flowering-bulbs/

"Plant spring-flowering bulbs over the holidays!"
https://blogs.ext.vt.edu/arl-alexvce/2013/11/22/plant-spring-flowering-bulbs-over-the-holidays/

A Choice of Blue

By Susan Martin | August 2018 - Vol. 4 No. 8

This article will focus on **two blue-flowering plants from the Asteraceae family that are similar in appearance, but behave very differently.** Both add great, long-lasting color from mid-summer through fall. Both are deer resistant. One is a nonnative annual; one is a native perennial. The perennial tends to spread very aggressively through both rhizomes and self-seeding. With that caveat in mind, you can evaluate each plant for use in your landscape.

AGERATUM

Ageratum is a genus of about 50 species of flowering annuals and perennials from the large and varied plant family Asteraceae (also called Compositeae). The genus name presumably comes from the Greek "*a geras"* meaning "not old age" because the flowers hold their color for such a long time.

***AGERATUM HOUSTONIANUM* – FLOSS FLOWER**

Commonly called **"floss flower,"** *A. houstonianum* is an **annual plant native to Mexico and Central America.** It was collected by William Houston, a Scottish surgeon and botanist (hence, *houstonianum*), in the early 1700s. Cultivation in Europe led to the establishment of *A. houstonianum* as a garden ornamental in Europe and the United States by the 19th century. Seed companies successfully introduced F1 hybrid cultivars in the mid-20th century.

A. houstonianum is easily grown in average soil in full sun, though it prefers rich soil with good drainage and consistent moisture throughout the growing season. In hotter climates, light afternoon shade is appreciated. Plants tend to wilt quickly if soils are allowed to dry out. Frost-tender, it is usually removed from the garden after the first frost.

The plant features fluffy flowers in flattened-to-slightly-rounded clusters. "Floss flower" refers to the thread-like appearance of the blooms. Each flower cluster consists of 5 to 15 tubular florets. Species flowers are medium blue, but cultivars have been developed in a range of colors including white, pink, mauve, red, and bicolor. Flowers fall to the ground when spent and are replaced by new blooms. Although not necessary, deadheading helps maintain a neater appearance. Leaves are typically oval to heart-shaped, hairy, slightly quilted, and soft green; lower leaves are opposite, upper leaves are alternate.

Ageratum houstonianum, Floss Flower

BENEFITS TO POLLINATORS

Bees and butterflies are attracted to the fragrant flowers; *A. houstonianum* is listed as one of the nectar sources for the butterfly *Eumaeus atala,* which is listed as rare and vulnerable in Florida. Birds, especially goldfinches and juncos, eat the plant's seeds.

Blue and white A. houstonianum with pollinators

SIZE CHARACTERISTICS

A very useful characteristic of *A. houstonianum* is that it **comes in a range of sizes, from 6" to 30" tall.** The shorter varieties are commonly used as bedding plants in the front of the garden, along walkways, and in containers. Plants in the 12" to 18" range can be used further back in the garden. 'Blue Horizon' is a more erect cultivar that can grow to 30" tall. Its beautiful lavender-blue flower is a welcome, deer-resistant addition to the center or rear area of the perennial bed. Tall cultivars are an excellent choice for gardeners who enjoy **cut flowers; the blooms are frequently used as dried flowers.**

A. HOUSTONAMINUM CULTIVARS

Most of the ***A. houstonianum* cultivars** are propagated from seed, and are predominantly **F1 hybrids**. F1 hybrid refers to the selective breeding of a plant by cross-pollinating two stable seed lines (called inbred lines). In genetics, the term F1 is an abbreviation for Filial 1 – literally "first children." Seed produced by F1 plants is genetically unstable and should not be saved for use in following years. The plants will not be true-to-type, and they will be considerably less vigorous.

Some of these cultivars are fragrant; some, reportedly, can cause skin irritation when handled. The latter seems to contradict the use of ageratum as a folk remedy for healing wounds. The information I found was not always consistent, but I have indicated the characteristics of fragrance and possible skin irritation when these were specifically noted in cultivar descriptions.

- 'Bavaria' is 12-18" tall; white near the center turning to blue near the edge.
- 'Blue Blazer' is 5-6" tall; first commercial F1 *A. houstonianum* hybrid; better plant uniformity and vigor; blooms earlier than open-pollinated cultivars.
- 'Blue Danube' is 6-8" tall; mid-blue; one of the best cultivars for uniformity, earliness of bloom, and general performance; may irritate skin.
- 'Blue Fields' is 6-12" tall; blue-violet.
- 'Blue Horizon' is 24-30" tall; medium blue-purple; fragrant; a great cut flower; does not set seed.
- 'Blue Mink' is 6-12" tall; powder blue; open-pollinated cultivar.

- The F1 hybrid Hawaii Series offers ‘Hawaii Blue’, ‘Hawaii Pink’, and ‘Hawaii White’. Compact, bushy plants are 6-12” tall, thrive in sun and in partial shade, bloom earlier in the summer, and last longer into the fall.
- ‘Pinky’ is 8” tall; compact bushy plant; salmon-pink flowers.
- ‘Pinky Improved’ is 6-9” tall; compact, showy plant; flowers are dark pink in the centers, fading to pale pink at their fringed edges.
- ‘Purple Fields,’ an F1 cultivar, is 6-12” tall and 12” across; unusual blue-purple flowers.
- ‘Southern Cross’ is 6-12” tall; white centers turning to cornflower-blue toward the edge; suited for containers in part-shade; handling plant may cause skin irritation or allergic reaction; flowers are sterile; does not set seed; good cut flower.
- ‘Summer Snow’ is 6” tall; F1 hybrid with fluffy white flowers
- ‘Trinidad’ is 6” tall; unique, early-blooming blend of small white, blue, violet, and pink flowers.

PLANT COMBINATIONS WITH *A. HOUSTONIANUM*

The soft blue of low-growing *A. houstonianum* pairs well with pink-flowering plants. White, yellow, orange, and red flowers also provide nice contrast. Check plant selections for light requirements. For example, if pairing with pink wax begonias (*Begonia x semperflorens–cultorum*), look for *A. houstonianum* cultivars that do well part-sun, such as the Hawaii Series. In sunny conditions, pair *A. houstonianum* cultivars with yellow marigolds, white or pink petunias, or dwarf Shasta daisies (*Leucanthemum x superbum*). Taller *A. houstonianum* cultivars work well with taller Shasta daisies or with *Gomphrena*; look for the *Gomphrena* ‘Ping Pong’ series in white, lavender, or purple.

A. houstonianum ‘Blue Horizon’ and Gomphrena ‘Ping Pong Purple’

PROBLEMS

When grown in good soil with adequate light, water, and drainage, *A. houstonianum* is typically a very dependable ornamental. It is also quite resistant to damage from Japanese beetles; watch for aphids, whiteflies, and red spider mites. Powdery mildew is an occasional problem, particularly in hot and humid climates where soils are kept on the dry side and air circulation is poor. Avoid watering from overhead if powdery mildew is an issue. Root rot may occur in poorly drained soils.

PROPAGATION

For F1 cultivars, gardeners should purchase seed each growing season. Seed may be started indoors in late winter (about 8-10 weeks before last frost). Surface sow, barely covering with vermiculite or just gently tamping down the potting mix. Exposing the seeds to light helps germination. Germination usually takes 7-21 days. Seed may also be sown directly in the garden after the last-frost date; however, the flowering season will be shorter (late summer to frost). Seeds are tiny and difficult to handle, particularly for sowing outdoors. Plant seedlings 6-8″ apart in a sunny spot after threat of frost has passed.

Some gardeners prefer buying flats of *A. houstonianum* seedlings, rather than starting from seed. Just check the labels to make sure you are getting plants of the desired color and height.

BOTANNICAL INSECTICIDE AND MEDICINAL PROPERTIES

Studies have shown that essential oils and extracts from the leaves of *A. houstonianum* exhibit antifungal, antimicrobial, and acaricidal (pesticides that kill members of the arachnid subclass Acari, which includes ticks and mites). The leaf oil is toxic to the tick *Rhipicephalus lunulatus* (Pamo et al., 2005). Leaf oils also exhibit mosquitocidal activity, as well as repellency against mosquitoes.

The leaf extract has been used against *Meloidogyne hapla,* a nematode that causes significant damage and crop losses in temperate zones (Thoden et al., 2009). Chemicals that induce the premature metamorphosis and sterilization of some insect species were isolated from *A. houstonianum* and are marketed as Precocene I and Precocene II (Jacobson, 1982). A Chinese study in 2014 looked at the effectiveness of the essential oils of *A. houstonianum's* leaves as an insecticide against booklice, and potentially as an insecticide against grain storage insects. Fungicidal activity against *Phytophthora infestans* has reduced the severity of that disease in tomato crops (Goufo et al., 2010).

The plant species is used in traditional medicine to treat skin infections and sore throats; the leaves are applied to wounds to stop bleeding. A study by Tennyson et al. (2012a) reports that the species has a high antioxidant activity with potential cosmetic and medicinal uses.

A. houstonianum can be toxic to grazing animals and cause liver lesions.

GLOBAL INVASIVE STATUS

A. houstonianum has escaped cultivation and naturalized in many temperate regions of the world, being declared an invasive in many areas including: China, Taiwan, parts of Africa (particularly South Africa) Australia, New Zealand, Peru, Tahiti, Fiji , French Polynesia, Cuba, and Hawaii.

CONOCLINIUM COELESTINUM – BLUE MISTFLOWER

Conoclinium coelestinum, synonymous with *Eupatorium coelestinum*, commonly called **blue mistflower or blue boneset, is an herbaceous perennial native to the Eastern United States.** Also in the Asteraceae family, it is a species similar to annual ageratum. Both are in the same tribe as bonesets, thoroughworts, and snakeroot. It looks like annual ageratum and in that regard is sometimes commonly called hardy ageratum. Frequently described as a late-summer-to-fall-blooming perennial, it often starts blooming by mid-summer in Zone 7, and then flowers well into fall.

DESCRIPTION

Blue mistflower can grow 1-3’ tall. Each flat, irregular flower head consists of 30-70 five-petaled disk flowers whose long stamens cause the fuzzy appearance of the flower. There are no ray flowers on this member of the aster family. The color has been described as clear blue, powder blue, azure blue, bluish-purple, reddish-purple, blue-pinkish, and pink-purplish. No matter the description of its hue, it’s beautiful color is a welcome addition to the summer garden.

Conoclinium coelestinum, Blue mistflower

Conoclinium coelinium, Blue mistflower

Blue mistflower grows in full sun to partial shade as long as it has plenty of moisture. Although it will survive in dry soils without supplemental watering, plants will be shorter, flowering will not be as grandiose, and it will not spread as much as plants that get regular irrigation. It can thrive in moist loam, sandy, or clay soils.

This perennial native is an aggressive spreader through both self-seeding and creeping rhizomes. It produces abundant seed that is wind-carried, often showing up in places where it may not be welcomed. It covers the ground with opposite, wrinkled, coarsely-toothed, triangular leaves that are 1-3” long on short petioles (stalk that attaches the leaf blade to the stem). Although fairly easy to pull, the plants can stray far from where they were originally intended.

NATIVE HABITAT

Blue mistflower is hardy in USDA Zones 4-11. It is found in floodplains, along pond and stream margins, in fields and wet meadows, and along road shoulders from New Jersey, west to Wisconsin and Kansas, and south to Texas and Florida.

USES

Because of its spreading characteristics, blue mistflower is a great addition to an open meadow area, or as a border along a woodland. It can, however, become an unruly, domineering addition to a formal perennial garden. Within a suitable setting, however, its sweep of color is a real WOW!

BENEFITS TO POLLINATORS

The Fall 2015 issue of *HabiChat* from the Maryland Department of Natural Resources describes the benefits to pollinators:

*Blue mistflowers are a **late-season butterfly favorite**, attracting monarchs, sulphurs, buckeyes, and more. **Long- and short-tongued bees**, flower flies, moths, and beetles all can be found nectaring. Caterpillars, such as the clymene moth and lined ruby tiger moth, will dine on its foliage. Few mammalian herbivores will take a bite, however, as the leaves are bitter to the taste.*

PROPAGATION

Sow seeds in autumn or provide cold stratification if planted in spring (place seeds in a plastic bag with moistened sand or a moistened paper towel, seal, and keep in the refrigerator for about 3 months). **Propagate by root division in spring or when early plants appear.**

SUMMARY

Each of these plants provides a beautiful blue to the garden when many other summer blooms are fading. Both are long lasting, resistant to deer, free from major pest problems, and attract pollinators. The perennial, blue mistflower, is an aggressive spreader, and its location should be thoughtfully selected.

SOURCES

Ageratum Houstonianum, http://www.plantfileonline.net/plants/plant_details/9

"*Ageratum* L. 'John Eustice': A New Vigorous Lavender–Blue Flowered Summer Annual," http://hortsci.ashspublications.org/content/49/4/509.full

Plants That Attract Wildlife, Pollinators in Urban Landscapes, http://msue.anr.msu.edu/resources/how_to_protect_and_increase_pollinators_in_your_landscape/better_habitat_for_bees

Conoclinium coelestinum, http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=j870

Ageratum houstonianum 'Blue Horizon,' http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=260781&isprofile=0&

"*Ageratum*, *Ageratum houstonianum*," https://wimastergardener.org/article/ageratum/

The Plant List, http://www.theplantlist.org/1.1/browse/A/Compositae/Ageratum/

Cornell Growing Guide: Ageratum, http://www.gardening.cornell.edu/homegardening/scene8ada.html

Ageratum Varieties, https://davesgarden.com/guides/pf/go/84590/

Wisconsin Horticulture: Ageratum, https://hort.uwex.edu/articles/ageratum,

Ageratum, University of Vermont, http://pss.uvm.edu/pss123/annagera.html

"Wildflowers of the United States,"

https://uswildflowers.com/detail.php?SName=Conoclinium%20coelestinum

Florida Plant Encyclopedia, http://floridata.com/Plants/Asteraceae/Conoclinium+coelestinum/838

“Protecting and Enhancing Pollinators in Urban Landscapes for the U.S. N. Central Region,” http://msue.anr.msu.edu/resources/how_to_protect_and_increase_pollinators_in_your_landscape/better_habitat_for_bees

Conoclinium coelestinum, Lady Bird Johnson Wildflower Center, https://www.wildflower.org/plants/result.php?id_plant=coco13

Conoclinium coelestinum, Missouri Dept. of Conservation, https://nature.mdc.mo.gov/discover-nature/field-guide/mist-flower-wild-ageratum-blue-boneset

“Maryland Native Plant Profile: Blue Mistflower,” http://dnr.maryland.gov/wildlife/HabichatArchive/Habichat48.pdf

“Isolation of Insecticidal Constituents from the Essential Oil of Ageratum houstonianum Mill. against Liposcelis bostrychophila Badonnel,” Journal of Chemistry, https://www.hindawi.com/journals/jchem/2014/645687/

Invasive Species Compendium, https://www.cabi.org/isc/datasheet/3573

“Gomphrena–An Antidote for the Late Summer Blahs,” http://pmgarchives.com/article/gomphrena-an-antidote-for-the-late-summer-garden-blahs/

Glyphosate: Health Controversy, Benefits and Continuing Debate

By Ralph Morini | August 2018 - Vol. 4 No. 8

At a time when alternative facts and fake news are making detectives out of all of us, we probably shouldn't be surprised that conflicting opinions invade our lives as gardeners as well. Glyphosate, the active ingredient in the world's most widely used weed killers, including Monsanto's Roundup, has long been regarded by government agencies, including the US Environmental Protection Agency (EPA), as economical, broadly effective, low-toxicity and environmentally benign. In 2015 however, glyphosate was classified as "probably carcinogenic to humans" by the World Health Organization's International Agency for Research on Cancer (IARC). This classification conflicts with the EPA's stated opinion that glyphosate is "not likely to be carcinogenic to humans". Since the IARC's departure from the prevailing governmental posture on the chemical, there has been a proliferation of conflicting opinions on where the truth lies. Let's try to sort the arguments out in lay terms.

How it works

Glyphosate is applied to leaves and stems and translocates throughout the plant, concentrating in meristem tissue. It blocks the shikimic acid pathway, preventing plants from making certain amino acids required to produce proteins needed for growth. Exposure leads to stunted growth, loss of green coloration, leaf wrinkling/malformation, tissue death and plant death, generally in 7-21 days.

The absence of this pathway in mammals is the basis for low toxicity claims in humans. Humans and other animals must get these amino acids from their diets since they can't produce them.

The National Pesticide Information Center notes that glyphosate doesn't easily pass through skin. If ingested, it passes quickly without change. It may cause eye/skin and nose/throat irritation and can be toxic if ingested intentionally in very large quantities. This is unsurprising and typical of many commonly used items like aspirin and table salt, for example. It further notes conflicting studies on whether glyphosate exposure increases cancer rates in humans, including a possible association with Non-Hodgkin Lymphoma, and notes that developmental and reproductive issues have been observed in rats at high doses.

Environmentally, glyphosate binds to soil, making it unavailable to plants and minimizing runoff issues. It is

broken down by microbial action with a half-life averaging about 47 days.

History

Glyphosate was patented by Monsanto in 1974 and is the active ingredient in their Roundup herbicide. Today glyphosate is used in many competing herbicide products. Its use as a weed control product took off in the 1990s when Monsanto introduced GMO crops that are unaffected by it. Today these crops include corn, soybeans, sugar beets, canola and cotton. Glyphosate is used as a pre-planting treatment and as a maintenance treatment during the growing season. Less well known is its use as a dessicant, sprayed on wheat crops. The practice is to spray Roundup or a similar product on wheat to dry the plants up a couple of weeks prior to harvest. This makes the harvest more uniform and easier on harvesting machinery. There is some dispute about how widespread this practice is in the US. Overall, the use of glyphosate herbicide products in the US is in excess of 100 million pounds annually.

The IARC Position

On March 20, 2015, the IARC (International Agency for Research on Cancer) published an opinion that called glyphosate "**Probably carcinogenic to humans**". The studies were an analysis of published and peer reviewed reports, of mostly agricultural exposures in the US, Canada and Sweden performed after 2001. It also reanalyzed EPA studies of tumors in lab mice. According to IARC, the EPA originally classified these results as possibly carcinogenic to humans (1985), but then later reclassed them as presenting "evidence of non-carcinogenicity in humans" (1991) after a review of the tissue slides by an independent panel of expert pathologists. The IARC analysis of this data led to a conclusion of "sufficient evidence of carcinogenicity" that they became a part of the "probably carcinogenic to humans" position noted above.

The EPA Position

In December 2017, the EPA released a "draft" human health risk assessment for glyphosate, concluding that it is "**not likely to be carcinogenic to humans**" and found "no other meaningful risks to human health" when used according to published directions. The EPA assessment is based on published information plus manufacturer data that is normally withheld from public view to protect proprietary information. While Monsanto offered to provide this data to IARC, they declined to include it. The EPA conclusion agrees with virtually every major regulatory body in the world, (IARC, not a regulatory body, excepted) and includes the

latest observations of enrollees in the Agricultural Health Study, a collaboration of EPA, National Cancer Institute, National Institute of Environmental Health Sciences and the National Institute for Occupational Safety and Health. It is the largest ever pesticide study with over 50,000 farmers in North Carolina and Iowa participating over 25+ years. A November 2017 published study update cited "**No association apparent between glyphosate and…Non-Hodgkin Lymphoma. There was some evidence of AML (acute myeloid leukemia) among the highest exposed group that requires confirmation.**" The EPA draft assessment does state that "there is potential for effects on birds, mammals, and terrestrial and aquatic plants". A "final" opinion is due from EPA in 2019.

Opinions from Other World Regulatory and Advisory Organizations

In March 2015, the European Chemicals Agency (ECHA), the main driver of European Union chemicals regulation, released a report that concluded that there is **"no evidence linking glyphosate to cancer in humans, based on the available information"** and that **"glyphosate should not be classed as a "substance that causes genetic damage or disrupts reproduction"**.

The same conclusions were reached by the European Food Safety Authority, national authorities in Canada, Japan, Australia and New Zealand, and the Joint Food and Agriculture Organization/World Health Organization on Pesticide Residues. This makes the IARC the only agency with a divergent view.

The Confilict Continues

The IARC position has been undermined by a Reuters journalist who managed to get a copy of the draft report and found 10 significant instances where evidence of non-carcinogenicity of glyphosate in animals were edited out and were replaced with neutral or countervailing statements.

On the flip side, there is reporting that a key EPA official involved in the agency's cancer assessment has a cozy and maybe compromised relationship with Monsanto. There is current court action underway involving hundreds of lawsuits of alleged non-Hodgkin lymphoma sufferers brought by farmers and farm workers. There are also published reports by academic researchers noting correlations between glyphosate exposure and shortened gestational lengths in pregnant women as well as the coincident rise of glyphosate use with the increase of autism since the 1990s. There are no direct causal relationships established, but they add to the emotion around the topic.

Complicating matters is the fact that the cited reports address glyphosate without considering the effects of other chemicals in the herbicide formulation, which need not be identified on the product label. For example, there is evidence that the surfactant in Roundup is toxic to aquatic plant species, so glyphosate-based products containing that surfactant are not approved for aquatic weed control. In addition, conventional farmers handle many different chemicals throughout their lifetime. It is difficult to effectively isolate glyphosate's impacts from the many other variables that could affect the study participants' health.

And finally, after 20 plus years of heavy use, there are an increasing number of weeds, 24 species at last count, that are glyphosate resistant. At some point this becomes a major issue for both weed control and the crops that the herbicide has been mated with. What then?

Sorting It Out

An important distinction between IARC and EPA positions is that **IARC assesses Hazard. EPA assesses**

Risk. **Hazard** means that glyphosate, in this case, is capable of causing cancer under *some circumstances*. IARC does not determine safe/unsafe exposure levels or attempt to quantify risks. **Risk** attempts to quantify impact based on level of exposure. The EPA "not likely to be carcinogenic" position is based on use per manufacturer directions.

From a user viewpoint, glyphosate based herbicides are low toxicity compared to other chemical weed control options. It has had a positive impact on the growth of no-till farming, reducing erosion, runoff and topsoil depletion. It has also helped increase food production in a food-short world, while helping control growers' costs.

On the opposing side, there are credible individuals and environmental organizations that hold the opinion that glyphosate may be a human carcinogen. Regardless, it is unsettling to know that we unavoidably ingest glyphosate residues in our food and at a minimum, pass it through our bodies. The Non-Hodgkin lymphoma and AML claims by high exposure farm workers are a definite concern, even if their exposure is a lot higher than for us home gardeners.

Then there is the symbiotic relationship between glyphosate, GMO crops and Monsanto's heavy dependence on their related acceptance by society. There is certainly reason for caution in accepting Monsanto's advocacy given their stake in the outcome.

Organic Alternatives

Based on my research, there doesn't seem to be another chemical herbicide that matches glyphosate's combination of effectiveness and low toxicity. So as chemical weed killers go, it is hard to improve on.

Organic herbicides are most effective on smaller weeds

There are several organic post-emergence herbicides available for home use. They include acetic acid-based products containing 10-20% acidity vs the 5-7% content of the white vinegar in our kitchens. Other products contain mixtures of plant oils, acetic or other acids, or other chemicals. The products most widely used by organically-minded professionals are plant oil mixtures. Clove oil is the basis for many, with citric and cinnamon oils also part of different recipes. All these options are contact herbicides. They will burn down above ground plant parts but underground parts like rhizomes, bulbs and roots are unaffected

and require repeated applications for control. In addition, acetic acid and the oils have strong scents which some may find objectionable. Ironically, the risk to skin and eyes from contact may be higher with these products than with glyphosate. Many advisors recommend these alternatives for smaller weed control requirements, for example on a patio or pool area.

Corn gluten can be a practical pre-emergence weed control product

If your need is for preemergence weed control, corn gluten meal may be used on turf and certain other areas. It is a byproduct of corn milling and inhibits germination of crabgrass and certain other weeds. It requires metered application and moisture management, and lasts about 5 or 6 weeks. However, tests indicate that chemical herbicides like pendimethalin are more effective than corn gluten.

Cultural alternatives

Beyond hand-weeding and boiling water, there are a couple of non-herbicidal practices worth mentioning. Using a **propane torch** to burn weeds, actually to heat them to kill cell function, can be an effective contact weed control method. Obviously, care to prevent the spread of fire beyond the weeds under attack is very important. Specialty weed torches have flames that are nearly invisible and it is not hard to imagine inadvertantly lighting up a wooden fence post, or dead plant material among the weeds. Again, the method does not kill the roots of offending plants, only the above ground portion.

For a contained area, **solarization** is an option. This involves tilling the area to be cleared of weeds and covering it with a sheet of plastic for six weeks in summer. This will raise the soil temperature enough to kill weed seed.

So What About Roundup?

The IARC opinion lacks the specificity to be of much value, beyond stoking fear. The EPA draft is more substantial and the “not likely to be carcinogenic” characterization is a relatively high bar. However it isn’t conclusive and the many outstanding claims of negative health impacts will keep the debate going.

The occasional use of glyphosate products by home gardeners doesn’t appear to generate unacceptable risks of toxicity, carcinogenicity or environmental harm, as long as users follow directions for mixing and use. The large scale use of these chemicals in commercial farming does however cause concern for farm workers, the environment and the public at large. Gut level discomfort with the widespread use of glyphosate products on commercial crops and its hidden presence in our food, is understandable in spite of the official view that it is not likely to harm human health. It is this large scale commercial dependence on glyphosate, and other chemical pesticides and fertilizers, that is most troubling.

What does the home gardener do? Aspire to gardening using integrated pest management or organic techniques. Turn to glyphosate and other chemicals, minimally, when there is no effective alternative. Follow directions for mixing and use. Understand that virtually all conventionally grown produce and processed foods may contain trace levels of pesticides such as glyphosate, and that the EPA has determined that these amounts don't pose a health risk. And while conventionally grown produce is equally nutritious, organic produce will be closer to chemical free.

And stay tuned. This story is a long way from over…

Sources:

"EPA Concludes Glyphosate Is Not Likely to Be Carcinogenic to Humans," NC Cooperative Extension, (P Maxwell, M.S., and T Gannon, Ph.D., updated Feb 27, 2018), https://www.turffiles.ncsu.edu/2018/01/epa-concludes-glyphosate-is-not-likely-to-be-carcinogenic-to-humans/?src=rss

IARC Monographs "Volume 112: evaluation of five organophosate insecticides and herbicides," World Health Organization, March 20, 2015, http://www.iarc.fr/en/media-centre/iarcnews/pdf/MonographVolume112.pdf

"In glyphosate review, WHO cancer agency edited out "non-carcinogenic" findings", Kate Kelland, 10/19/2017. https://www.reuters.com/investigates/special-report/who-iarc-glyphosate/

"IARC Response to criticisms of the monograph and the glyphosate evaluation, IARC Director, Jan 2018,"www.iarc.fr/mediacentre/iarcnews/IARC_response_to_criticisms_of_the_Monographs_and_the_glyphosate_evaluation

"EPA Releases Draft Human Health and Ecological Risk Assessments for Glyphosate for Public Comment," *The National Law Review*, T Backstrom and J Aidala, March 8, 2018.

Glyphosate Fact Sheet, National Pesticide Information Center, npic.orst.edu/factsheets/glyphotech

"Why Regulators conclude glyphosate safe while IARC, alone, claims it could cause cancer," Andrew Porterfield, Genetic Literacy Project, July 24, 2015. geneticliteracyproject.org/2015/07/24

Monsanto, EPA Seek to Keep Talks About Glyphosate Cancer Review a Secret, Carey Gillam, Huffington Post, The Blog, January 19, 2018, www.huffingtonpost.com/carey-gillam/Blog

"Glyphosate Exposure in Pregnancy and Shortened Gestational Length: a Prospective Indiana Birth Cohort Study," *Environmental Health* (Pavez, Gerona, Proctor, Friesen, Ashby, Reiter, Lui and Winchester, March 9, 2018), ehjournal.biomedcentral.com/articles/10.1186/s12940-018-0367-0

"Challenges for Use of Glyphosate Alternatives in Urban Landscapes, University of Florida, IFAS Extension," May 27, 2016. http://nwdistrict.ifas.ufl.edu/phag/2016/05/27/challenges-for-use-of-glyphosate-alternatives-in-urban-landscapes/

"Vinegar: An Alternative to Glyphosate?" University of Maryland Extension, (Deborah Smith-Fiola and Stanton Gill, updated 2017), extension.umd.edu/sites/extension.umd.edu/files/_docs/programs/ipmnet/

"Glyphoste Use and Cancer Incidence in the Agricultural Health Study," *Journal of the National Cancer Institute*, (Andreotti et al, Nov 9, 2017), www.ncbi.nlm.nih.gov/pubmed/29136183

Through the Garden Gate Tour — Saturday, Sept. 8

By Cathy Caldwell | August 2018 - Vol. 4 No. 8

Through The Garden Gate: Meredith Mercer Garden

Saturday, September 8 @ 9:00 am – 12:00 pm

Meredith Mercer Garden, 2000 Hessian Road
Charlottesville, VA + Google Map

When Meredith moved to Charlottesville in2006, top on the list of criteria for a new home was having space for an extensive garden that she could develop from scratch.

Admission is $5 at the door

Find out more »

In the Vegetable Garden- August

By Cleve Campbell | August 2018 - Vol. 4 No. 8

“The month of August is a busy month in the vegetable garden.” This must be about the fifth month in a row that the *Monthly Tasks and Tip* article has highlighted the “busyness” of whichever month we’re in. Perhaps you’re beginning to believe that *every* month in the vegetable garden is a busy month. Well, as a vegetable gardener, I must say that certainly seems to be the case! Let’s begin with the short version of the August To-Do list: continue to harvest vegetables, remove spent spring and summer crops, and weed. August is also the time to plant fall crops and cover crops.

Speaking of **weeds**, I am always amazed at how they continue to pop up week after week and year after year. I am often asked, “Where do they come from and why so many?” They can be blown in by the wind, washed in by surface water, and introduced by birds and other wildlife. And the weed-seed inventory can also be increased with the application of organic matter through compost and manure. One of my biggest gardening surprises was the day I learned that the majority of weeds come from seeds we gardeners plant ourselves. Whoa, hold on! Gardeners plant weeds? Every time a weed is allowed to go to seed, it replants itself in our garden. Okay, by now you’re thinking, “It’s August, it’s hot, and I get sweaty just *walking* to the garden! How are a few weeds going to seed in the garden going to make a difference?” Well, you are going to be surprised!

A garden friend once remarked, “Certain weeds have mastered every survival skill except learning to grow in straight rows! And it’s as if they are the home team; they always win because they bat last.” One of the survival skills that weeds have truly mastered is their ability to produce an abundant seed crop. How abundant you ask? Many common weeds have the ability to produce thousands of seeds that are deposited on the earth. Many of these seeds have a protective coating and can remain fertile for up to 40 years or more after they are added to the weed “seed bank.” A seed bank is simply the collection of weed seeds in the soil. Let’s look a little closer at that seed bank.

A single weed plant can produce a great number of seeds. Examples of individual plants that produce a hefty number of seeds include: red pigweed (*Amaranthus retroflexus)* — 117,000 seeds per plant; common purslane (*Portulaca oleracea)* — 52,000 seeds per plant; shepherd’s purse (*Capsella bursa-pastoris)* — 38,000, common lambsquarters (*Chenopodium album)* — 28,000; and yellow foxtail (*Setaria glauca)* — 12,000.

This annual collection of seeds, if present in the garden or in the seed bank, makes weeds a tough adversary. It is estimated that the seed bank can be depleted by 80-90 percent within 2-3 years after weed control is started. However, the seed bank can be replenished in only a single year of no control or ineffective control. Did you ever wonder about the origin of that old gardening proverb, “**One year of seeding makes seven years of weeding**?” Think of that weed seed bank in the garden waiting to sprout!

Common Purslane (Portulaca oleracea) — a single plant can produce up to 52,000 seeds.
Photo Source: Oregon State University

August is a transition month: the vegetable garden is moving from late spring and summer crops to cool weather or fall crops. The gardener who fails to plant a fall garden is often missing out on a remarkable growing season. Here in central Virginia, we can harvest fresh produce well into the fall and often into early winter. No matter how ragged the summer garden looks, a fall garden offers us not only a second growing season, but also a second chance to plant those early spring crops that failed in the summer heat. August in central Virginia is definitely fall planting season. Timely planting is the key to success.

Red Pigweed (Amaranthus retroflexus) — a single plant can produce up to 117,000 seeds. Photo Source: Maine.gov

The following planting chart was created by using the Virginia Cooperative Extension Publication 426-334, "Vegetable Planting guide and Recommended Planting Dates."

August 1-10		August 11-20	August 21-31	
Beets				
Brussels Sprouts*				
Broccoli*		Broccoli*		
Cabbage*		Cabbage*		
Carrots				
Cauliflower*		Cauliflower*		
Chard, Swiss		Chard, Swiss		
Collards		Collards		
Cucumbers		Cucumbers		
Chinese Cabbage*		Chinese Cabbage*		
Endive		Endive		
Kale		Kale	Kale	
Kohlrabi		Kohlrabi	Kohlrabi	
Lettuce, bibb		Lettuce, bibb	Lettuce, bibb	
Lettuce, leaf		Lettuce, leaf	Lettuce, leaf	
Mustard		Mustard	Mustard	
Peas, Garden		Peas, Garden		
		Radish	Radish	
Rutabaga		Rutabaga		
Spinach		Spinach	Spinach	
Turnips		Turnips	Turnips	
		Cover Crops:		
Buckwheat		Buckwheat	Buckwheat	
* Denotes Transplants				
The suggested dates may vary for different areas.				

More Gardening Tips and Tasks For August:

- When **choosing vegetables for the fall garden**, select those that are **semi-hardy**, as they will tolerate a light to moderate frost, and look for those with **quick maturity** (fewest days to harvest). This information will be listed on the **seed packet** or in the **seed catalog**.
- **Vegetables that can be planted in August** include leafy greens such as lettuce, spinach, collards, kale, and mustard. Radishes, turnips, beets, and carrots can all be started from seed in August. Chinese cabbage, broccoli, cauliflower, and Brussels sprouts can be transplanted in August and still have enough time to produce a good harvest. When selecting plants for transplanting at the local gardening center, be sure you are selecting edible (not ornamental) varieties of cabbage and kale.
- **Fall plants often have fewer insect problems** because they avoid the peak insect activity period of midsummer. However, some insects, such as cabbage worms and corn earworms, may be worse later in the year than in the summer; vigilance is still required. Avoid some pests and diseases by planting crops of different families than those which were originally grown in that section of garden.
- When planting fall crops, **prepare the soil by restoring the nutrients removed by spring and summer crops**. A light layer of compost or a small application of an organic or complete

fertilizer will provide the nutrients needed by your fall crops.

- Dry soil can make working the soil difficult and can also inhibit seed germination during the late summer. **Plant fall vegetables when the soil is moist,** either after a rain or after you've watered the area thoroughly the day before planting. Plant the seeds slightly deeper than recommended for spring planting. Once planted, water them in thoroughly, and then use mulch or a covering of compost to prevent the soil from crusting.
- **Watering properly** is the key to conserving water in the heat of the late summer. One inch per week applied all at one time will wet the soil 6 to 8 inches deep and insure good yield from your mature crops. Two inches of organic mulch such as leaves or straw will cool the soil and reduce surface evaporation of water. Water the garden early in the day so the foliage dries before nightfall. **Wet foliage at night increases susceptibility to fungus diseases.**
- When **mulching around young seedlings**, care should be taken not to cover the seedlings. Young seedlings need as much sunlight as possible; mulch should cover the soil, not the young plants.
- **Pick summer squash and zucchini every day or two** to keep the plants producing. If you are going on vacation this month, harvest all your vegetables beforehand and then arrange for someone to pick fast-maturing crops such as squash and okra while you're off loafing. Otherwise, your vegetables will become over-mature and stop producing,
- **Potatoes continue to grow as long as the tops are green**. Dig only as many as you need for immediate use. The tubers will keep better in the ground than in a warm, dry area.
- **Consider planting a cover crop.** A cover crop such as annual rye decreases erosion of the soil during the winter, shades out weeds, adds organic material when it is incorporated into the soil in spring, improves the soil structure, and adds valuable nutrients. Cover crops can be sown between rows of fall vegetables a month or less before expected harvest. The cover crops will get a head start and will not interfere with vegetable plant growth. Buckwheat will be killed by frost but can be sown as a cover crop up to 6-8 weeks before a killing frost, usually about the 3rd or 4th week in October. For more information on the attributes of growing buckwheat check out the "Buckwheat" article in our August 2016 issue of *The Garden Shed*.

Buckwheat planted between corn rows.

- Garden vegetables that become over-ripe are easy targets for some pests. **Remove ripe vegetables as soon as possible.**
- **Having trouble locating your tools** when working in the garden? Paint the handles of your garden tools a bright color other than green or tie a piece of bright orange surveyor's tape around the handle.

During the hot dog days of August, one of the last things a vegetable gardener wants to think about is planting more crops. But look ahead to the fall garden which offers the satisfaction of a prolonged harvest of fresh vegetables, savings in food costs, and making full use of your gardening space and growing season.

Thanks for visiting us in *The Garden Shed*. We look forward to your visit next month.

Sources:

"Why So Many Weeds? The Weed Seed Bank," Colorado State University Publication

2113, http://planttalk.colostate.edu/topics/weeds-cultural-problems/2113-many-weeds-weed-seed-bank/

“Vegetable Planting Guide and Recommended Dates,” Virginia Cooperative Extension Publication 426-334, https://pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/426/426-331/426-331_pdf.pdf

“August Monthly Tip Sheets
-Vegetables,” https://albemarle.ext.vt.edu/programs/horticulture-natural-resources.html

“Weed Management on Organic Farms,” http://content.ces.ncsu.edu/weed-management-on-organic-farms, Center For Environmental Farming Systems, North Carolina State University

Fruit Tart: Gluten and Dairy-Free!

By Cate Whittington | August 2018 - Vol. 4 No. 8

Heart-healthy, high-protein almond flour combines with a rich,

vegan pastry cream and sweet fruits of summer to yield an unbeatable guilt-free August dessert!

I am asked increasingly to cook for vegans. While this does not represent much of a problem with savory dishes of all sorts, desserts require more testing. There are numerous substitutions for dairy, but I find that the taste or texture is sometimes compromised. I often turn to Elena Amsterdam's Gluten-Free Almond Flour cookbook with recipes to satisfy those following both dairy and gluten-free diets. The following simple tart crust may be adapted for any number of vegetable and fruit tarts. I have included Elana's recipe for creme pattissiere, made with cashews, to serve as a replacement for creme fraiche or whipped cream in this dessert.

The dessert itself is basic: crust, filling, glazed fruit. Some assembly required.

For the tart pictured above, I spread the creme patissiere onto the bottom of the cooled crust, then arranged glazed nectarines, plums, and apricots on top of that. For my glaze, I melted a small amount of Flamin' Peach Jam from Chiles Peach Orchard on the stovetop and poured it over the cut fruit. I love the kick that the red pepper flakes added to the sweetness of the sugary peaches. You may also spread the jam directly onto the crust, beneath the layer of creme patissiere, and leave the fruit unadorned. Using what's in season, experiment with other fruits and jams to your heart's content. The possibilities are endless.

Serve immediately or refrigerate up to two hours to prevent the crust from becoming soggy.

Tart Crust

Ingredients

1 1/2 cups blanched almond flour

1/2 teaspoon sea salt

1/4 teaspoon baking soda

1/4 cup grapeseed oil

2 Tablespoons honey

Directions

1. Preheat oven to 350 degrees.
2. In a large bowl, combine the almond flour, salt, and baking soda. In a medium bowl, whisk together the grapeseed oil and honey. Stir the wet ingredients into the almond flour mixture until thoroughly combined. Press the dough into a 9″ tart pan.
3. Bake for 7-10 minutes, until golden brown. Remove from the oven and let cool completely before filling.

Creme Patissiere

Makes 1 1/2 cups

Ingredients

1 cup cashews

1 cup plus 1 Tablespoon water

1/3 cup honey

1 Tablespoon vanilla extract

1 Tablespoon arrowroot powder

Directions

1. In a blender, puree the cashews, 1 cup of the water, honey, and vanilla extract on the highest setting for 1 to 2 minutes, until smooth. Place the cashew mixture in a medium saucepan and bring to a boil. Whisk constantly for 1 minute, then decrease the heat to a simmer while preparing the arrowroot paste.
2. In a small bowl, dissolve the arrowroot powder in the remaining 1 Tablespoon water, stirring to make a paste. Increase the heat to high and add the arrowroot paste to the cashew mixture, whisking constantly for a bout 1 minute, until the mixture thickens. Remove from heat.
3. Store in a glass jar in the refrigerator for up to 2 days.

Elana Amsterdam, the Gluten-Free Almond Flour cookbook, 2009, Celestial Arts, Berkeley