

Number 5 - May 23, 2016

What is That Yellow-Flowered Plant?

The springtime color scheme provided by winter annual weed species in many no-till fields has shifted from the hearty purple of flowering henbit and purple deadnettle to the bright yellow flowers of two species. Yellow rocket and cross-leaf groundsel (a.k.a. butterweed) both produce bright yellow flowers and are common across much of the southern half of Illinois. Although flower color is similar, the plants are distinct species. Most of the yellow-flowered plants currently in fields is butterweed.

Native to the United States, butterweed (*Packera glabella*) can be found from Texas east to Florida, northward along the Atlantic coast to Virginia, and west to Nebraska. Herbarium specimens from the Illinois Natural History Survey indicate that butterweed specimens were collected in Illinois as early as 1932. The earliest herbarium specimens of butterweed generally originated from counties in southern Illinois. During the 1980s and 90s, the Illinois Natural History Survey augmented their collection with specimens from more northern counties, such as Champaign and Vermillion. While scouting fields in Kankakee County recently, butterweed was easy to find. Typically favoring moist to saturated soils, butterweed thrives in areas such as wastelands, pastures, fence-rows, and roadsides. With the increased adoption of no-till and re-

duced tillage conservation practices, butterweed has become more prevalent in areas devoted to agronomic crop production.

Butterweed completes its life cycle within one year (an annual growth habit). Field research was conducted from fall 2004 through spring 2006 at the University of Illinois to determine the emergence timing and growth characteristics of butterweed in no-till fields. Butterweed emergence was predominantly during the fall months and was essentially completed by November, although some emergence occurred in the spring. From these results, we generally consider butterweed to be a winter annual species.

Following emergence, the formation of rosettes occurs prior to overwintering. The rosette leaves have petioles that connect the leaves to the stem. Often the under side of the rosette leaves are deep purple. Bolting (stem elongation), flowering and seed production occurs the following spring, often during late April to early May. The stem of butterweed is glabrous and hollow. After bolting, petioles are absent from leaves on the upper part of the plant. The leaves are pubescent, generally irregular in shape, and are deeply cut to the midrib. The elongated stem often has a purplish tint. A member of the *Asteraceae* family, butterweed produces two types of composite flowers. The outside por-

tion of the flower contains ray florets while the center part contains disk florets. The flowers are bright yellow and grouped in clusters that are located on several flowering stalks of the plant. Seeds are easily disseminated via wind due to the white hairs (pappus) on the apex of the achene.

Yellow rocket (*Barbarea vulgaris*) is a winter annual species in the mustard (Brassicaceae) plant family. The plant can produce numerous stems that grow from a basal crown surrounded by a rosette of deeply green leaves. These basal leaves range in length from approximately 2–8 inches and have a large terminal lobe that is somewhat heart-shaped at its base. Stem leaves are arranged alternately and become progressively shorter toward the top of the plant. Flowers are produced on spike-like racemes and consist of four petals that form a cross. Seed pods (siliques) are about 1 inch long and nearly square in cross section. (*Aaron Hager*)

Sycamore Anthracnose

Recent weather has provided ideal conditions for anthracnose diseases of shade trees. Sycamores are the most commonly affected trees in Illinois.

Sycamore Anthracnose occurs in three phases: canker, shoot blight, and leaf blight. The canker phase occurs in April and early May while the tree is dormant. This phase kills either individual buds or the tips of year-old shoots. Girdling cankers form just below the buds often killing them before the end of dormancy. Cankers can continue to enlarge, encircle and kill small shoots. The canker phase can be quite damaging, especially

during springs with prolonged, cold temperatures that extend dormancy and allow the pathogen additional time to colonize bark and bud tissues.

Shoot blight describes the rapid death to newly expanding shoots and leaves. Shoot blight occurs either as the pathogen infects and kills the branch on which a new shoot was developing or as the pathogen enters succulent new growth. This phase often occurs during cold spring weather and can be confused with frost injury.

The leaf blight phase develops from fungal spores produced on cankers. Infections are most severe on the inner portions of lower branches where moisture remains the longest. Infected leaves develop brown lesions along the primary veins. As the fungus kills the primary veins, larger brown leaf areas die. The infection continues down the petiole and into the main shoots where it overwinters. Premature defoliation is common.

Cool moist weather during the two weeks following bud break favors both shoot blight and leaf blight phases. Serious infections are more likely to occur when the average temperature is between 50° and 55°F. In contrast, sycamore anthracnose infections are minimal if the average temperature is above 60°F.

In general, anthracnose diseases do not kill trees; but repeated infections can weaken trees, making them susceptible to other problems. Some defoliation may occur, but new leaves will emerge in warmer weather. Focus efforts on boosting tree vitality. Prune in and around the tree to open it to better air movement. Remove dead or dying branches. Water

in periods of drought. Fertilize affected trees in the fall.

London planetree (*Platanus x acerifolia*) is a cross between the anthracnose susceptible Sycamore (*Platanus occidentalis*) and the anthracnose resistant Oriental Planetree (*Platanus orientalis*). 'Columbia', 'Liberty,' Exclamation!™ ('Morton Circle'), Ovation™ ('Morton Euclid') are several cultivars of London planetree that exhibit resistant to anthracnose.

Unless anthracnose fungi have repeatedly hit a tree or a very young tree is involved, we do not recommend using fungicides. Additionally, treatment may not be practical for larger trees. Trunk injected fungicides are available and may be an option for high-value sycamore trees. (Travis Cleveland)

Peony Problems

So far, it's been a beautiful year for peonies. The tree peonies bloomed earlier, and the herbaceous peonies are starting to open. While it's easy to enjoy these lovely plants while they're flowering, they're also easy to forget about later in the year when the colorful blossoms are gone, and all that's left are the leaves.

Peonies get a number of foliar diseases in summer and fall. The most common in Illinois are Botrytis blight, measles (aka red blotch or leaf blotch), and powdery mildew.

Botrytis blight is caused by a few related species of the fungus *Botrytis*, including *B. cinerea*. *B. cinerea* has a very wide host range and may infect a large number of ornamental plants. Botrytis blight

can affect all above-ground parts of the plant; symptoms are most often found on leaves and buds. Botrytis blight on peony causes reddish-purple spots on leaves and shriveled, discolored buds. Stems and flower petals may also become discolored, wilted, or shriveled. Brown or gray fuzzy masses may be seen on the surface of affected tissue with a hand lens; these are dense thickets of spores produced by the fungus, which will blow or splash away to initiate new infections. This disease is favored by cloudy, rainy weather, and usually shows up in spring or early summer.

Measles, or red blotch or leaf blotch, is sometimes confused with Botrytis blight. Measles is also caused by a fungal pathogen (*Cladosporium paeoniae*) and symptoms are superficially similar. Initial infection causes small, reddish spots on the leaves and stems, which may expand and coalesce to form large, irregular reddish-purple blotches. Warm, wet weather favors this disease, and like Botrytis blight, it usually shows up in spring or early summer.

Peony powdery mildew usually shows up later in summer. It's a common disease found on a wide variety of plants. While the fungal pathogens that cause powdery mildew on various hosts are related, they're not the same species. Each species is fairly host-specific, so the powdery mildew pathogen affecting your oak tree is unlikely to cause disease to your phlox or bee balm. Powdery mildew can affect both leaves and stems, producing a white film over the surface of the plant tissue that can be smudged off with fingers. As the infection progresses, fruiting structures are produced that can be seen with the naked eye.

They appear as tiny black specks in the white film.

None of these diseases are considered a threat to an otherwise healthy plant, but they can drastically reduce aesthetic appeal. Rarely, on plants that are heavily stressed due to other pest pressures or poor environmental conditions, these diseases can be lethal. Happily, management of all of these pathogens is fairly straight-forward.

Cultural management practices include planting peonies appropriately by avoiding heavily shaded areas and spacing plants to avoid over-crowding. Watering at the base of the plants and early in the day can also help reduce some disease issues. Most importantly, good sanitation should be practiced. Spent blooms should be cut from plants, infected leaves and stems removed, and all above-ground plant tissue cut and removed in autumn when the plants begin to senesce.

Fungicides are available and can be helpful to suppress heavy infestations, but are rarely needed most years. Copper, copper + mancozeb, copper hydrozide, copper sulfate, and mancozeb are labeled for use against Botrytis blight and measles; neem oil, potassium bicarbonate, sulfur, tebuconazole, and triticonazole are labeled for use against powdery mildews. (*Diane Plewa*)

Moss

Some folks spend time and money mixing up concoctions to get moss to grow between bricks and stone pavers in sidewalks and patios. Others fills concrete or hypertufa troughs with all sorts

of loose soil mediums to raise moss gardens on rocks and boulders, spraying them daily with moisture. Books have been written on developing your own moss garden.

On the other hand, more people get frustrated with moss taking over their lawns, choking out the turfgrass.

Moss is classified as a bryophyte, one of simplest forms of plants. They absorb water and nutrients through their leaves. They differ from most of our typical weeds in that they reproduce by spores instead of seeds, and don't have a vascular system – the xylem, cambium and phloem we learned in elementary school. Not having the vascular system means that food and water flow freely within the plant. It also means the plant doesn't have the ability to produce tall stems, with plant growth just bunched on top of each other creating a layered effect.

Moss prefers a loose growing medium which is why you find it growing on the sand between brick and stone pavers, on shake shingles, and on rock scree under trees in foggy, tree-lined mountains. However, moss will grow on the thatch, organic layer, sitting on top of a poorly-drained clay soil.

Moss is generally an indicator of site condition problems. Fix those conditions, and the moss problems usually subside, though they may not be totally gone. Just killing the moss without changing the site conditions will only allow moss to re-grow. Conditions favoring moss generally don't favor turfgrass.

Moss thrives in shade and moisture, though the plant still needs some light in order to manufacture food for growth so

you won't find it in dark, shaded conditions. If moss is growing under a tree canopy, careful and professional thinning of the branches of trees and shrubs will bring in more direct light which it turn will thin out the moss. However, you can't easily move buildings if they are causing the shade.

Moisture may be more difficult to change, though not impossible.

Aerating the soil can help with drainage, though it may require several years of fall aeration to really make a difference. Adding organic matter may increase drainage initially, but would need to be added every two or three years as it breaks down.

French drains can funnel water away from low-lying areas if aeration doesn't work. In large areas, underground tiles may work.

Of course, watch your irrigation. If moss is unwanted, avoid watering those areas when irrigating. Reposition sprinklers or choose a type that allows you to direct the water to certain areas and avoid others. There's not much you can do to control rainfall.

Herbicides are limited because the plant has no vascular system, which is why grass and broadleaf weed killers provide no or limited control. Instead, products containing iron in the form of ferrous sulfate or ferrous ammonium sulfate compounds seem to provide the best control. There are some herbicidal soaps, usually potassium salts of fatty acids, that also claim some control. Though with all products, if the site conditions aren't modified, the moss usually returns. (*David Robson*)

Gnats in Your Face

Gnats have been bothersome recently. Numerous tiny flies hovering in one's face can result in reduced productivity and distraction can result in physical injury. Rove beetles are also numerous, appearing similar to gnats (small flies) while flying.

Eye gnats (Family Chloropidae) live as larvae in decaying organic matter. The recent frequent rains have aided in the decomposition of dead vegetation from the winter, producing the organic mush needed for their development. Mature larvae pupate with adult flies emerging a few days later. Adult eye gnats are black and about 2 mm (1/16 inch) long. They feed on secretions of the eyes and noses of people and other mammals, resulting in their common name. They are also attracted to secretions of the genitals of male dogs, resulting in various colorful colloquial names.

Buffalo gnats (Family Simuliidae) are also known as black flies. Their larvae are filter feeders in streams and rivers, using mouth fans to strain out tiny creatures and organic debris in the water current. The larvae of most species only survive in clean water. Efforts to reduce soil runoff and pollution of streams have allowed these and other insects such as mayflies, stoneflies, and caddisflies to become more numerous in Illinois. Adult buffalo gnats feed on the blood of mammals, birds, reptiles, and amphibians, frequently being specific to particular animals. The buffalo gnat species flying at this time do not appear to be biting people, but become nuisances flying around one's face. They are half again larger than the eye gnats, being about 3 mm long, and black. Typically in June,

buffalo gnat species emerge that bite humans and birds, being nuisances to us but killing poultry and other birds where they are numerous.

Rove beetles are slender with pointed abdomens and shortened wing covers (elytra). They vary in size and habits with various species being herbivores, predators, or scavengers. The currently numerous species are black with brown elytra and are about 3 mm long. Many insects will taste what they land on to determine whether it is edible. Tiny rove beetles such as these commonly produce noticeable pinch-like nips when they land on your skin.

Insect repellents containing DEET are effective although those with floral fragrances may be attractive to rove beetles. Small rove beetle species commonly feed on pollen. Hats with netting that protect the head from bothersome insects are also available. *(Phil Nixon)*

Emerald Ash Borer

Emerald ash borer adult emergence was reported in southern Illinois in early May. They are being found at this time, mid-May, in central Illinois. They should start emerging in northern Illinois around the end of May into early June. A major means of control relies on killing the newly emerged adults as they feed on ash leaves, reducing the number of

eggs laid. Refer to the articles on emerald ash borer in Issue 3 of this newsletter for further information. *(Phil Nixon)*

Modified Growing Degree Days (Base 50°F, March 1 through May 21)

Station Location	Actual Total	Historical Average (11 year)	One-Week Projection	Two-Week Projection
Freeport	356	358	434	523
St. Charles	338	342	410	492
DeKalb	364	394	448	543
Monmouth	452	447	537	637
Peoria	471	481	558	660
Champaign	502	488	596	704
Springfield	578	546	682	797
Perry	564	518	656	761
Brownstown	545	600	654	775
Belleville	754	630	866	989
Rend Lake	756	682	875	1005
Carbondale	719	645	832	957
Dixon Springs	742	698	860	990

Insect development is temperature dependent. We can use [degree days](#) to help predict insect emergence and activity. Home, Yard, and Garden readers can use the links below with the degree day accumulations above to determine what insect pests could be active in their area.

[GDD of Landscape Pests](#)

[GDD of Conifer Pests](#)

Degree day accumulations calculated using the [Illinois IPM Degree-Day Calculator](#) (a project by the Department of Crop Sciences at the University of Illinois and the Illinois Water Survey). *(Kelly Estes)*