

# The Weed Garden

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Learning how to control them by seeing how they grow



The weed garden at Michigan State was difficult to establish and taught turfgrass scientist Ron Calhoun a lot about weeds.  
*PHOTOS COURTESY OF MICHIGAN STATE UNIVERSITY.*

Ron Calhoun is the environmental turfgrass specialist at Michigan State University, and about a dozen years ago he had a wild idea. Because he needed live weeds for turfgrass class demonstrations, among other reasons, he thought he would grow a weed garden.

He started with a plot about 5 feet by 5 feet, planting little patches of Michigan's favorite weeds. He carefully watered it and fertilized it, the way you would any garden, but some weeds refused to germinate, some grew much too prolifically, and some had mysterious growing problems and died. Also, outside weeds came in and colonized his weed patch. It took a lot of hard labor to establish his garden.



Sometimes known as the weed whisperer, Ron Calhoun ponders weed ecology in a large plot of dandelions.

"We thought we would just put them in a little nursery area," Calhoun recalls, but because of the demands of the different weeds and their difficulties he had to expand the area. That has now grown into an irrigated plot that is 70 feet by 70 feet where, at any one time, 35 to 40 species of weeds are growing in 4-by-5-foot plots separated by a mower-width of turfgrass. This is located at the south end of the Robert Hancock Turfgrass Research Center on the East Lansing campus, where he also oversees several acres of bare land that is used to study crabgrass and other weed species in larger plots.

Calhoun's Ph.D. was earned in the study of the seeds of one of the world's most persistent weeds, annual bluegrass, so one might think he would be an expert at growing weeds. He discovered that, like grasses, most weed species have their own demanding growing conditions. In his weed garden some species required extra irrigation, some required little shelters to provide shady conditions, and some needed to be on dry plots and protected from the irrigation. Some weed plots required borders to prevent the spread of those species, others actually required mowing or "roughing up" the ground every year to allow them to thrive.

Ultimately, Calhoun learned a lot about weed ecology, and says it was a turning point in his way of thinking about the relationship between turfgrass and their weed pests. He may have invented an entirely new field: weed management. The garden's demands, predicated on the different demands of each weed species, opened his eyes about the way weeds interact with grasses and other plants.

"Maybe I would have learned all these things from a book," he says, but he doubts it. Being forced to watch certain weeds flourish and others die made Calhoun analyze what each species needed. Watching the life cycle of a weed during the course of the year gave him insight into management and control techniques, because once he figured out what made a weed thrive, he could reverse-engineer the process and figure out what would make it go into decline or die.

Take the odd case of prostrate knotweed. It would be natural to think that, since this prominent Midwestern weed can be found growing in the most trying conditions alongside a sidewalk at the airport and supplanting turfgrass, it would be easily grown in a garden. Not so. It not only likes dry and low-fertility sites, it also favors compacted ground where grass won't grow. His knotweed plots died out under the ideal irrigated conditions, and Calhoun realized the soil was too loose.



Visitors to Michigan State, such as those getting a lecture from Ron Calhoun in a crabgrass area, have the opportunity to learn about weed ecology.

"We started walking on it," he says. He encouraged students, visitors and anybody else he could find to trample the prostate knotweed plots. He also cut back on the water and fertilizer. Those plots then flourished.



A lot was learned about prostrate knotweed, which was difficult to grow in the weed garden.

Or, take the odd case of ground ivy. This common Michigan weed became the weed of the weed garden. Wherever Calhoun planted it, the ground ivy took off rapidly and spread out across the turfgrass divides and moved into the other weed plots, infesting them. It moved around the following year by seed, and he finally ended up letting it select its own best site.

Now Calhoun has become comfortable with the fact that his weed garden must be cultivated and managed just as carefully as a sports turf facility would be. He starts early in the spring, planting species that didn't overwinter and caring for the new plants. He does a lot of mulching and irrigation control. The entire area has sprinkler irrigation, but some water-loving weeds must be

hand-watered in addition.

The weed garden has become a valuable tool. The research information about weed characteristics and growing needs have become the basis for his advice to turfgrass managers and homeowners on how to avoid or manage the weeds they have. Calhoun has tracked the growth of weed species based on degree-days and heat accumulation, and can now predict which weeds will be flowering, for example, at a certain time of the year. Anyone in Michigan who sees a weed flower can now go to the Web site, [www.msuturfweeds.net](http://www.msuturfweeds.net), which grew out of the garden project, and identify the weed based on sight and on degree-day timing. He has even produced a poster that shows the different growth timing of many common weeds.

The weed garden has also become a handy site for learning weed identification, primarily for horticulture students who otherwise would not be able to see some of the uncommon weeds in all stages of their life cycles. They learn that spurge and oxalis love dry ground, while wild violet and creeping speedwell like it very wet. The site is also part of the annual weed workshop during field days for the public.

Dandelion, one of the common lawn weeds in the region, is a good example of a pest Calhoun uses to demonstrate weed management as learned from his garden. He tells visiting grass managers and homeowners that prevention is the best weed management technique, pointing out that using good soil fertility and other turfgrass management techniques to grow healthy grass will generally keep dandelions at bay. If dandelions are present, apply an herbicide in the fall to kill them, and then renovate the lawn.

Visitors understand these principles when they see them demonstrated at the weed garden. Visiting scientists may also poke a little fun at Calhoun—who is known to call himself the “weed whisperer”—because growing weeds for a living isn’t the norm for turfgrass scientists or horticulturists. With his acreage of cultivated weeds, Calhoun has become something of a renegade at the turfgrass center, and he has raised one big question: What is a weed?

“If that’s what you’re trying to grow, it’s no longer a weed,” he points out, and that changes your entire viewpoint.

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