

Pollinator Friendly Weed Control

Tips for the Home Gardener

By Sean Rustemeyer of Soil 'N Green Landscaping

As we head into July, the gardening season comes into full swing and the age-old battle of “Gardener vs. Weeds” renews. In our home gardens, there are many options for weed control and the products and techniques we choose will have an impact on pollinator health. Pollination is an important ecosystem service that is estimated to be necessary for the reproduction of more than 80% of total plant species and 35% of global crop production.¹

As they have such a critical role to play, it's important that we make decisions that support pollinators. Pesticide use (which includes insecticides, herbicides, and fungicides) has come under growing scrutiny in recent years. While there is clear evidence that some insecticides have direct negative consequences on bees and other pollinators, less is known about the direct effects of herbicides. These substances are designed to target and remain on plants and it's difficult to track exactly how they transfer to pollinators and what effects they have. A small body of evidence has linked glyphosate, one of the most widely used herbicides in the world and the key active ingredient of Roundup, to a decline in bee health. Results from one study suggested that honey bee navigation is impaired by ingesting trace amounts of glyphosate with potential long-term negative consequences for colony foraging success.² Herbicide use can also indirectly affect pollinators by reducing habitat and killing beneficial flowering plants that provide forage.

Even without a lot of direct evidence linking herbicides to pollinator decline, we should take a precautionary approach and avoid them along with other pesticides [when possible, especially in smaller scale projects like yards where there are alternatives to pesticides]. With effective chemical-free options available, there really is no good reason to use them in our home gardens. As a professional landscaper who uses ecological practices, I have found the following techniques to be effective methods of weed control:

1. Propane Torch - For hard surfaces, such as driveways, sidewalk cracks, and gravel paths, a propane weed torch is a great tool. There are different styles on the market and which one you choose will largely depend on the area you have to cover. A flexible hose style attached to a 20 lb propane tank (the kind you use on your barbecue) is great for covering large areas like gravel driveways. A convenient, lightweight option for smaller areas is a long wand that screws onto a small camping size propane bottle. Young seedlings and annual weeds will often be killed with one pass of the torch, while mature perennial

¹ Schowalter, TD, ed (2022). *Insect Ecology*. 5th edn. Cambridge, MA: Academic Press, Pp 623–665

² Balbuena, M. S., L. Tison, M.L. Hahn, U. Greggers, R. Menzel, and W. M. Farina. 2015. Effects of sublethal doses of glyphosate on honeybee navigation. *The Journal of Experimental Biology* 218:2799–2805. DOI:10.1242/jeb.117291

weeds will require multiple passes. Large dandelions, in particular, require repeat burnings because of their deep tap roots and ability to regrow. It is a war of attrition and if you're persistent, they will eventually exhaust their energy stores. One of the obvious risks with using an open flame is causing a fire. A quick google search of weed burning will bring up news stories where city crews have set grass medians on fire and the like. In my opinion, this risk can be mitigated with common sense. The best seasons to use a weed torch are spring and fall. Avoid using it in the middle of a dry, hot summer, and if there is a local fire ban in effect, open flames should not be used at all. An additional measure is to have a charged garden hose or a full watering can nearby so you can wet down the area if you have any concerns. The flames damage plant tissue instantly, so adding water after the fact won't change the efficacy.



Propane
weed torch

2. Natural Herbicide Sprays - To replace Roundup and some of the other chemical weed killers, there have been a number of alternative herbicides introduced to the market. One of the most effective I have used is horticultural vinegar, or acetic acid. It is sold under various trade names for the gardening consumer and is also available in bulk as an industrial cleaning product. At 10-20% acetic acid, this vinegar is much stronger than your household cooking vinegar which is 5%. Acetic acid is not without its risks though. A study found that formulations containing approximately 10% acetic acid could pose a high risk to honey bees, though it also suggested that spot treatment application might reduce that risk.³ Care should be taken using acetic acid or any other off-the-shelf foliar spray. Best practice is to follow label instructions, use targeted spot treatment, and spray on a calm day without wind to avoid drift to beneficial flowering plants.

3. Manual Removal - The tried and tested technique of weeding with hand tools will always be an effective weapon in the gardener's toolkit and is my personal favorite. Luckily, there is no shortage of weeding tools on the market, and everyone should be able to find a tool that fits their body and the task at hand. From various styles of hoes for upright weeding, to dandelion diggers and crack weeders, there is a manual tool out there for every type of weed. Two of my favorites for garden bed weeding are a hori-hori knife and a dagger shaped trowel called the "Diggit". Both of these are great for precision weeding and getting out culprits with a long tap root such as dandelions. I would also recommend investing in some knee pads or a foam kneeling pad, as manual removal means you will likely end up on your hands and knees at some point, and this will make the job more comfortable.



"Diggit" tool
and dandelion

As a final word, shifting one's perspective on weeding away from something that is a burdensome chore can make a big difference. Slowing down and taking the time to manually remove weeds can actually be enjoyable work. There are not many garden tasks

³ European Food Safety Authority; Conclusion on the peer review of the pesticide risk assessment of the active substance acetic acid. EFSA Journal 2013;11(1):3060. [57 pp.] doi:10.2903/j.efsa.2013.3060.

that are more satisfying than digging in moist soil and getting that whole dandelion out, tap root and all! When you're down on your knees, you also have the chance to get up close and personal with your garden. Take this time to check in on the health of your plants. Are any of them struggling? What are the microclimates like in each part of your yard? What pollinators are present and have you provided adequate habitat for them? By ditching chemical herbicides and embracing some of these pollinator friendly weeding techniques, you will be helping to support biodiversity in your garden and the larger environment. And remember, a little elbow grease is good for you. Happy gardening!



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