Nonchemical Weed Control for Home Landscapes and Gardens[1]

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A weed in a home landscape is defined as a plant in an undesirable location with high reproductive output. This may include the desired plant outgrowing its original space or desired boundary. Many homeowners and gardeners are interested in managing weeds in their landscapes and gardens without the use of chemical herbicides. A non-chemical approach is possible but requires more planning and effort to be successful. There are multiple options described below and homeowners are most likely to achieve the desired results by incorporating several techniques into a management plan. There are many benefits to nonchemical approaches, including lower risk of damage to non-target plants, decreased costs, and the opportunity to more frequently scout the landscape for potential problems.

To adequately manage weeds without herbicides requires frequent and consistent monitoring. Homeowners should take the time to walk through their property on a regular basis and identify problematic areas or weeds that need to be addressed. Basic knowledge of the weed species present around the home will help identify the best management approach. In addition, homeowners may want to consider modifying areas of their landscape where weeds are a persistent problem.

It is important to maintain weed populations at the lowest level possible to prevent re-infestation. Established perennial weeds produce vegetative reproductive parts such as roots, rhizomes, stolons, or tubers. These structures facilitate rapid spread, making them difficult to kill and enable quick population rebound. Annual weeds do not produce vegetative reproductive parts but will flower and produce large numbers of seeds that may greatly increase future problems. For example, annual grasses can produce several thousand seeds per plant, while some annual broadleaf weeds can produce tens of thousands of seeds per plant. Both annual and perennial weeds are typically easier to control when they are small and prior to flowering. Timely and routine monitoring and weed management are essential to maintaining low levels of troublesome weeds.

Below are some of the most common options for weed control and descriptions of their strengths and weaknesses.

Prevention

When monitoring your property for weeds consider how a weed is invading your landscape and gardens. This may affect your management chocies. Some weeds will be persistent within the landscape and it may take several years to reduce their populations. Weeds may invade through seed floating in the air from neighboring properties. Depending on the abundance and location of these properties, there may be distinct patterns and directionality of these weeds. Decorative fences, larger trees, or other wind blocks may help limit the spread onto the rest of your property. Some weeds may be deposited randomly throughout your property after being digested by birds. Unfortunately, options

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are rather limited for prevention in this case. Other wildlife may also be introducing weed seed into the landscape, such as squirrels with nuts or berries. Footwear and clothing can also introduce seed into the landscape. Care should be taken when visiting outdoor areas, particularly nature areas where seed may unknowingly be attached to clothing.

When bringing soil onto your property, consider acquiring garden soils which are formulated for beds and likely contain little to no weed seed. Edging around beds with a string trimmer or a specialized tool will help prevent some weeds from invading these areas, however this is limited by depth. Mowers from landscape companies may be a source of weed seed or plant parts when equipment is not adequately cleaned between sites. Similarly, potted plants and sod may contain weeds, which are inadvertently brought into the landscape with the desirable plants.

Hand Pulling

This strategy is a low-tech option that provides exercise and the opportunity to frequently scout the landscape for other potential problems. Pulling weeds can be very effective in some situations, such as when weeds are growing close to sensitive plants. Hand pulling can be strenuous and some weed species are extremely difficult to pull by hand. It is best to pull weeds while they are relatively small. Hand pulling of larger weeds is difficult and can result in the uprooting of nearby annual plants. In such cases, a pair of pruners can be used to remove the weed at the soil level, but additional removal will be necessary if it re-emerges.

Hand pulling is most effective if employed on a regular basis so that weed populations in landscape beds and gardens are kept to a minimum. In the case of perennial weeds that have an extensive root system, numerous sessions of hand pulling will be required before effectively exhausting the stored energy in the root systems. Until that time, the perennial weeds will continue to grow from their roots. A good pair of gloves and some knee pads will make this option easier and more comfortable.

Cultivation or Tillage

This method utilizes a tool or implements to physically remove or destroy weeds. The use of a hoe, shovel, trowel, or knife is adequate for the cultivation of small- to moderate-sized areas. For larger areas, tillage with a rototiller or similar equipment may be more efficient. Specialized weed removal tools, such as for dandelions, can be purchased but their effectiveness for other types of weeds is limited, as these tools grip the taproot within the soil for removal.

Cultivation or tillage is often more effective at removing weed species that are difficult to remove by hand, such as perennials with an extensive root system. These perennials will sprout again, but with successive cultivation it is possible to exhaust the food reserves in the roots. As with hand pulling, cultivation or tillage is most effective if employed on a regular basis so that weed populations are kept low. It also provides exercise and the opportunity to frequently scout the landscape for other potential problems. A rototiller should never be used around existing trees, but it is a great way to incorporate soil amendments such as organic matter, fertilizer, and lime. Cultivation is most effective when used in conjunction with other techniques to prevent re-infestation. Mulch or sod should be applied after hand pulling large weeds to prevent re-infestation.

Mulch

One of the many benefits of mulching in home landscapes and gardens is the suppression of weeds by creating a physical barrier. A 2- to 3-inch layer of mulch is adequate for weed suppression in most situations. In fact, mulch depths over 3 inches may be detrimental to plant health because of the potential decrease in soil oxygen. Mulch provides a clean, finished look to landscape beds and paths. Mulch may also help to moderate soil temperatures, maintain soil moisture, and provide plant essential nutrients. There are numerous types of mulches available for use in home landscapes and gardens. Mulching is less effective on nutsedge and other perennials. For more information on mulch, visit http://edis.ifas.ufl.edu/topic_mulch.

Landscape Fabric

It is increasingly popular to use landscape fabric to help prevent the emergence of weeds in planting beds. This fabric can also be used in the home garden. While potentially costly, these fabrics can suppress weeds for two or more years. It is important to note that landscape fabrics suppress many weed species but may increase the populations of others. Nutsedges (those weeds with a triangular stem) have a sharp growing point and can penetrate through the thinner styles of landscape fabrics. If weeds are coming through the fabric, it is important to hand pull them as soon as possible before they establish a foothold and become difficult to control.

Garden Blocks and Pavers

While decorative rock may have esthetic benefit to the landscape, they also have a weed management benefit. Garden beds which contain a retaining wall may help prevent weeds which spread by shoots or rhizomes from invading

into beds. Retaining walls also prevent turf from invading gardens (where it is likely considered a weed). Retaining walls can be used to make raised beds. This is particularly noteworthy for locations which suffer from heavy infestations of weeds. Landscaping fabric can be laid at the base to prevent weeds from growing into the newly raised bed. If drainage is a concern, gravel and seepage pipe can be installed below the landscaping fabric. Altering the habitat in which weeds are thriving will put them at a disadvantage and may make control easier.

Paving stones have an esthetic and functional role in landscapes and gardens. Assuring they have a solid foundation of gravel, sand, and landscaping fabric not only stabilizes them long-term but reduces the area in which weeds can grow; this helps to prevent spreading between adjacent pavers. A tamper can be used to level the ground if this option is chosen. This is particularly important for denser collections of pavers such as walkways where weeds may emerge between pavers.

Fertility and Irrigation

Composted manures are commonly used to supplement gardens and landscapes. These products are most effective in beds with denser plantings of desirable plants (such as annuals). In such cases, the bedding plants can utilize the available nutrients before the weeds have an opportunity. For maintenance of larger trees and shrubs, fertilizer stakes placed around the drip line of the plant may be a better option as it limits spatial availability to weeds. Corn gluten meal can be applied as a granular fertilizer with an additional benefit of impeding the growth of some germinating weeds.

Drip irrigation is becoming a more popular choice for irrigation than traditional overhead. It has the benefit of delivering water directly to the plants of interest, and in turn, not applying water to unnecessary areas in more open landscapes. Wet areas may favor some weeds; plan zones accordingly.

Flaming

Flaming uses the high temperatures created by a propane burner to burst the cell walls of plants. Burning the plant tissue is not necessary as plants will quickly dry out and die if their cell wall is destroyed. A quick way to tell if a weed is going to die from the flame treatment is to let the weed briefly cool and then press your thumb to the leaf. If it leaves a thumbprint or smudge, the treatment succeeded in causing the plant cells in the leaf to rupture. This weed control method will only control above-ground portions of a plant and will not adequately control perennial plants or grasses.

It is important to note that flaming can be dangerous to the operator and desirable plants. Never burn around the base of desired plants as the heat can damage shallow roots or thin-barked stems. Do not apply flame to landscape fabric, dry mulch or any other dry, flammable material as it may start a fire Be careful around irrigation systems and be careful not to melt any plastic or rubber portions of a soaker hose or garden hose.

Conclusion

Each strategy for nonchemical weed control has certain pros and cons associated with it. Most of these strategies can be used alone or in conjunction with each other. In fact, these strategies can be incorporated into a weed management program that includes the use of chemical herbicides. A successful weed management program for the home will use more than one technique. If a person is persistent, a good weed management program will reduce weed populations over time, making each successive season easier to maintain weed free.