

Herbicide Resistance in Lawn Weeds
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With the lawn care season coming up, correct use of herbicides to manage weeds helps reduce damage to nontarget plants, increases effectiveness, and can help reduce resistance in weeds.

Herbicide resistant weeds are those that are able to survive applications of an herbicide that had previously killed the weed. While there may not be a large number of resistant lawn weeds yet, there are some and there is a likelihood of additional weeds becoming resistant if certain management and herbicide application practices continue to be used.

Turfgrass weeds now known to have resistance in some states include annual bluegrass, smooth and large crabgrass, goose grass, spotted spurge and buckthorn plantain, according to the International Herbicide-Resistant Weed Database.

A weed develops resistance when a few weeds survive after an herbicide application. When the surviving weeds complete their life cycle and develop seed, resistance can then be transferred to the next generation. If the same herbicide or another herbicide with the same mode of action is applied, additional weeds survive until the resistant population becomes dominant.

Mode of action (MoA) is the effect an herbicide has on a weed that causes its death. It is based on the biological process or enzyme that an herbicide interrupts and affects plant development. To help reduce resistance, herbicides have been placed into numbered Groups based on MoA.

The Group number is listed on the pesticide label. For example, Group 2 inhibits amino acid synthesis, Group 4 are growth regulators, Groups 5, 6 and 7 inhibit photosynthesis and so on. When purchasing herbicides, alternate between Group numbers rather than herbicide brand or chemical names.

Weed management practices that lead to herbicide resistance include using herbicides as the only means of weed control. Applying only one type or Group of an herbicide and making frequent and repeated applications over an extended period of time such as multiple seasons; and not following recommended rates.

To help reduce resistance in weeds, use the following practices. Again, rotate herbicides with different Group numbers to avoid repeat applications of chemicals with the same MoA. Even if herbicides have different active ingredients, they can have the same MoA. And herbicides with different brand names may contain the same active ingredient. Rotate MoAs from year to year or within the season.

Herbicide rotation also reduces the chance of survival and reproduction of already resistant weeds. If a weed survives an application with one MoA because it is resistant, the problem may be controlled if the surviving weed is treated with an herbicide with a different MoA.

Before applying herbicides, positively identify the weed and determine when the best time is to apply herbicides for control. This will help reduce ineffective and wasteful applications. Some weeds are best controlled with preemergence herbicides applied before weed seed germinates. Others are best spot treated, often during fall.

Always identify alternative means of control to reduce herbicide use where possible. Don't overlook mechanical means like hand-pulling or digging, especially to prevent weed seed production.

Cultural control is managing turf and soil to maintain a healthy, dense turf able to compete with weeds. Correct mowing, watering, fertilization and core aeration increases turf competitiveness. Research has shown a taller mowing height to be almost as effective as preemergence herbicides in controlling crabgrass.