

**Impacts of Deficit Irrigation on Weed Spectrum in Turf.** Cheryl Wilen, Area IPM Advisor, University of California Cooperative Extension/UC IPM 9335 Hazard Way, Ste. 201, San Diego, CA 92123 [cawilen@ucanr.edu](mailto:cawilen@ucanr.edu)

In April 2015, Governor Brown announced that there will be an enforced 25% water use reduction for the entire state of California. In response to the to this executive order, many landscape managers severely cut back on irrigation in turf areas, often exceeding the mandated 25%. This was likely done so that other areas such as playing fields or other public areas can be maintained in high quality for both safety and aesthetics.

Nevertheless, the complete shutdown or severe reduction of irrigation at previously well-watered sites resulted in turf death as would be expected but also in the growth of weeds that could survive under this level of deficit irrigation. The following are my personal observations at various locations in southern California during the summer and fall of 2015.

- Residential lawn that was sodded with tall fescue; no supplemental irrigation applied - fescue died out and the lawn is being invaded with kikuyugrass. Another lawn under similar conditions was strongly invaded by woodsorrel after the tall fescue died.
- City park used primarily for youth soccer and picnicking; tall fescue and ryegrass; irrigation reduced about 25% in playing field and more in the turf surrounding the field – playing field has small patches of kikuyugrass, surrounding area is nearly all kikuyugrass; picnic areas are kikuyugrass, tall fescue, and annual broadleaf weeds. Interestingly, fairy rings are common in the deficit irrigated picnic areas
- Sidewalk medians that had tall fescue – most of fescue died; weeds in site were common chickweed, black medic, cheeseweed, spotted spurge, common purslane, and dandelion
- In many sites, dallisgrass proliferated

As expected, weeds which became established under deficit irrigation were those that had an adaptive mechanism which facilitated growth and development under conditions that are generally stressful for the tall fescue, a common turf species used in southern California. These weeds tended to have deep tap roots or rhizomes, e.g. cheeseweed, dandelion, dallisgrass, spotted spurge, kikuyugrass. Additionally, when the turf thinned out, there was considerably less competition and annual weeds were able to establish.

The impacts of deficit irrigation are going to have an impact on turf management even if the executive order is lifted or rainfall increases. As shown in the figure below, as turf irrigation is reduced to the point where the turf is no longer competitive, the weeds increase and turf quality declines. It is likely that herbicide use will increase to manage weeds that would normally be suppressed and in extreme situations, the site will need to be completely renovated, also often resulting in additional herbicide use.

