Nutsedge Control Strategy to Avert Potential Resistance to ALS-Inhibiting Herbicides. Kai Umeda, Area Extension Agent, Turfgrass Science, University of Arizona Cooperative Extension, Phoenix, AZ 85040, kumeda@cals.arizona.edu

Purple nutsedge (*Cyperus rotundus*) is a very difficult to control weed in warm-season turfgrasses and is more prevalent than the easier-to-control yellow nutsedge (*C. esculentus*) in the low desert regions of Arizona and Southern California. Most of the postemergence (POST) herbicides used for purple are equally effective against yellow; however, preemergence (PRE) are not effective against purple as metolachlor may control some yellow. A foliar burndown POST herbicide, MSMA is very restricted and only limited to some spot treating on golf courses and sod farms. Several acetolactate synthase (ALS) enzyme-inhibiting herbicides including the imidazolinones (IMI's) and sulfonylureas (SU's) are labeled and registered for effective nutsedge control in turfgrasses.

Field trials have demonstrated efficacy with two summer applications of Image (imazaquin), Dismiss South (imazethapyr + sulfentrazone), SedgeHammer (halosulfuron) or Tribute Total (halosulfuron + foramsulfuron + thiencarbazone), Monument (trifloxysulfuron), Certainty (sulfosulfuron), Katana (flazasulfuron), and Celero (imazosulfuron). Timing of POST applications of these herbicides should be initiated after the summer solstice (June 21) and followed by a sequential treatment on nutsedge regrowth at 4 to 6 weeks later. During the spring, nutsedge should be mowed frequently and in tandem, Dismiss CA (sulfentrazone) or if available, MSMA could be applied to burndown foliage. Do not overuse any of the herbicides as many have labeled limitations for total number of applications or total amount allowed to be applied in a period of time.

The ALS enzyme-inhibiting herbicides have additional multiple uses for: 1) overseeded ryegrass removal during spring transition; 2) *Poa annua* control just prior to fall overseeding; and 3) after fall overseeding to cleanup fairway edges of perennial ryegrass and *P. annua* and for clumpy ryegrass control. Over the course of a year, ALS enzyme-inhibiting herbicides could be applied excessively on a site where exposures to varied rates could lead to potential weed resistance to a valuable chemistry. The Weed Science Society of America designates the mechanism of action of the ALS enzyme-inhibiting herbicides in Group 2 and the global Herbicide Resistance Action Committee has a letter designation of Group B. In the United States, there are documented cases of resistance to the Group 2/B herbicides in turf by annual bluegrass, spotted spurge, and an annual sedge.

In summary, limit use of SU and IMI herbicides to 2 summer applications for nutsedge control in turf. A late June - early July initial application should be followed by a sequential application at 4-6 weeks later in mid-August. Emerging nutsedge in the spring should be mowed frequently and Dismiss CA and/or MSMA, if available, can be used to burndown nutsedge foliage. ALS enzyme-inhibiting herbicides should be used to eliminate perennial ryegrass during spring transition when temperatures and conditions are conducive for maximum efficiency of a single application. Alternative PRE and POST herbicides should be integrated in a rotation to manage *P. annua* and clumpy ryegrass during the winter. Optimizing a limited number of applications of ALS enzyme-inhibiting herbicides can curb the potential excess exposure of weeds to the valuable chemistry and extend their useful longevity for successful and sustained turf management.