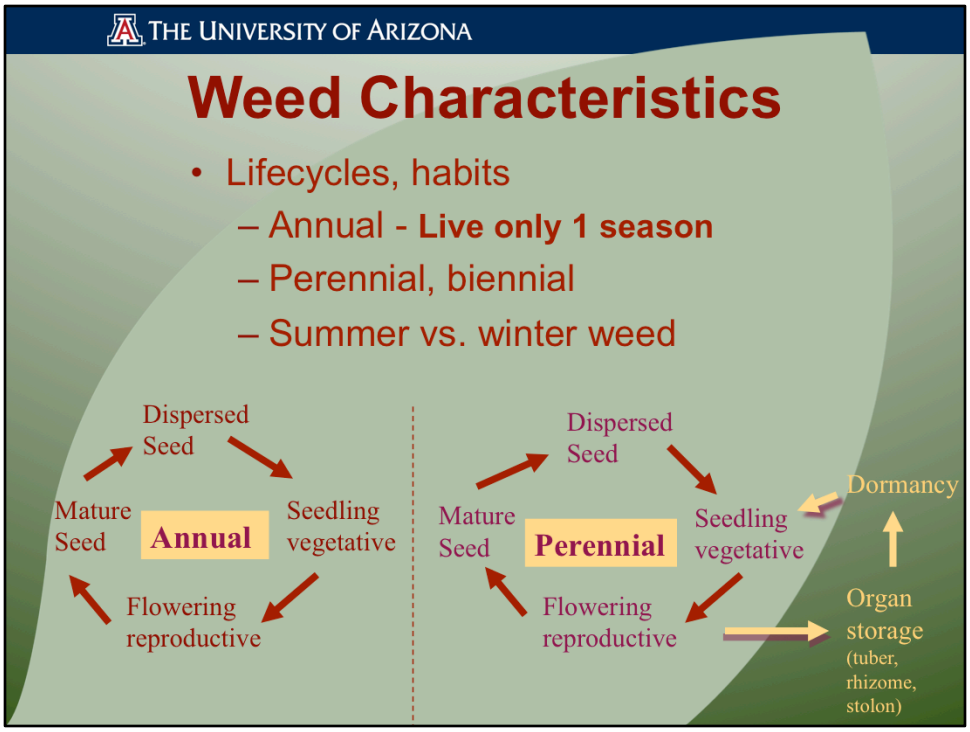
THE UNIVERSITY OF ARIZONA

IMPORTANCE OF PROPER WEED IDENTIFICATION & UNDERSTANDING OF GROWTH HABITS FOR OPTIMAL TIMING & EFFICIENT USE OF PROPER HERBICIDES IN TURF

Kai Umeda

kumeda@cals.arizona.edu

ARIZONA | COLLEGE OF AGRICULTURE AND LIFE SCIENCES | COOPERATIVE EXTENSION

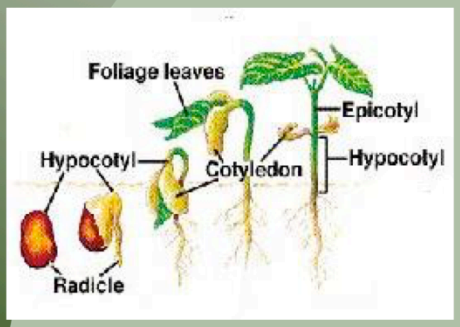


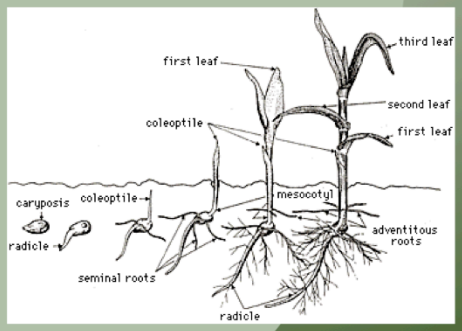
It is important to know the characteristics of the weeds in a landscape such as turf. Annual weeds live for 1 season and then produce seed. Perennial weeds have an underground storage organ such as a tuber (nutsedge), rhizome or stolons (bermudagrass) and survive over several years.
Another classification is by the season that it grows during the summer or winter.

THE UNIVERSITY OF ARIZONA

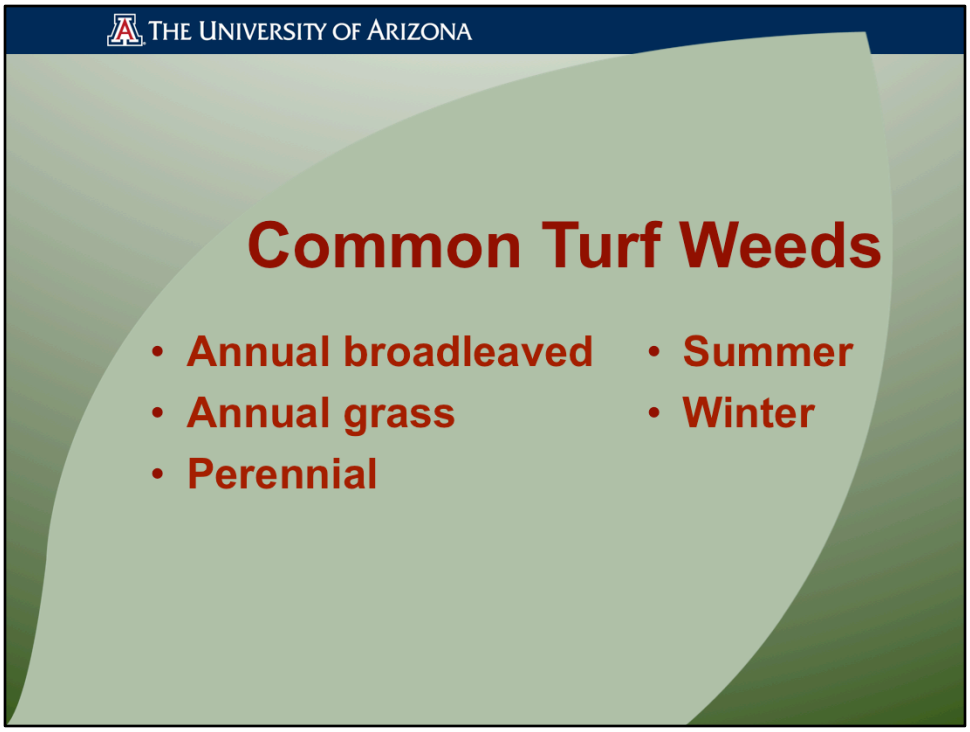
Weed Classification

- Morphology
  - Dicot vs. monocot (broadleaved vs. grass)

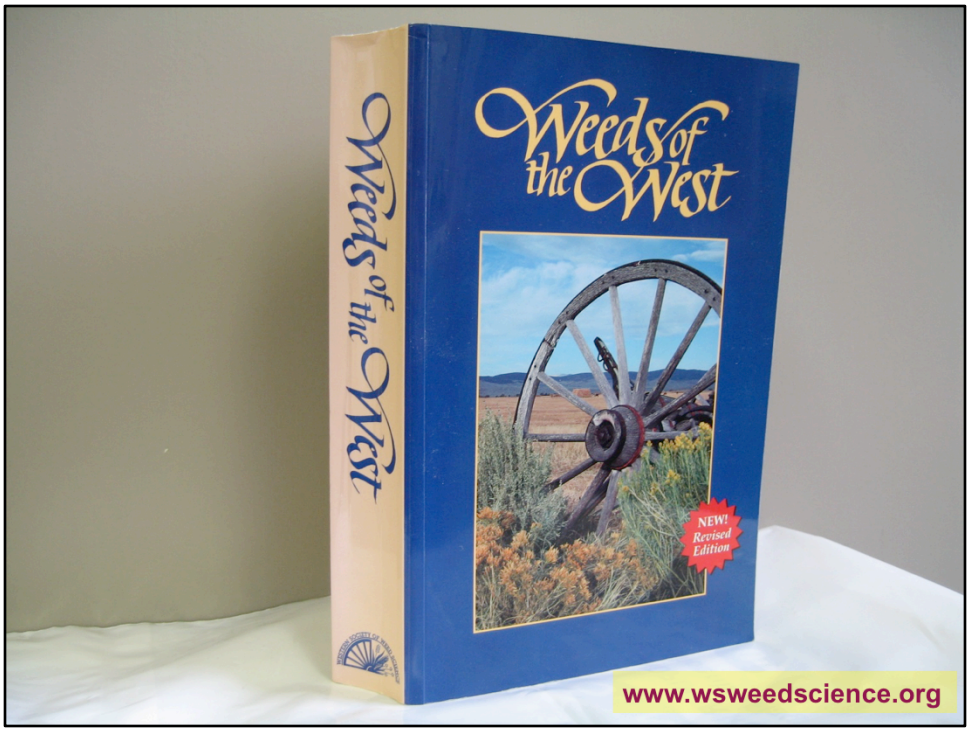




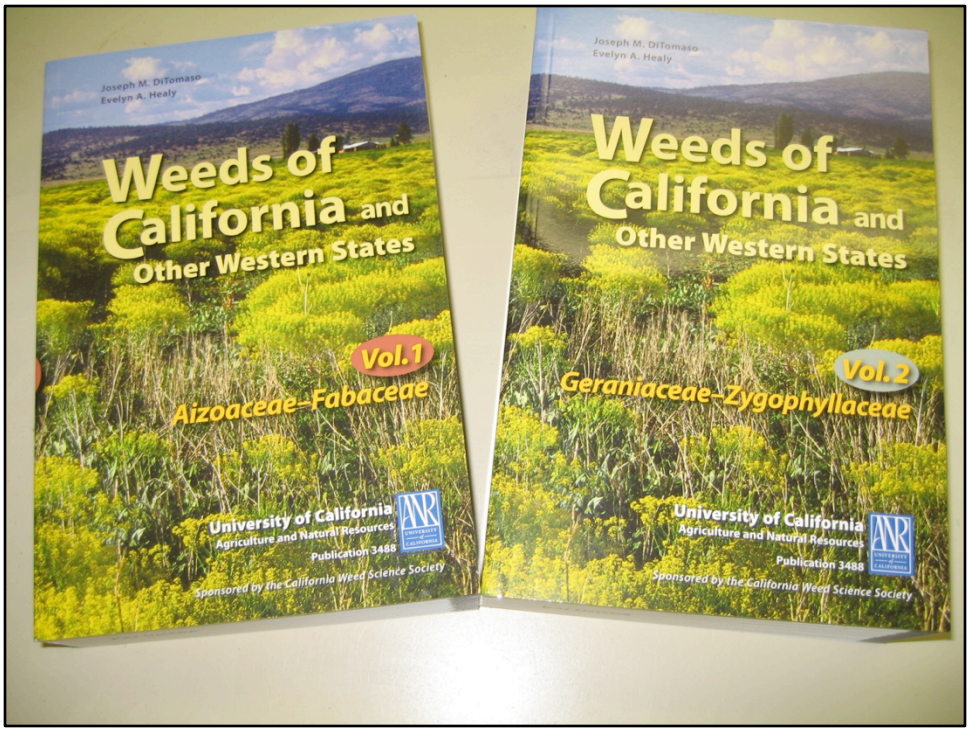
Winter or summer annual or perennial weeds can be grasses (monocot) or broadleaved (dicot). Grasses push up a single shoot or coleoptile from the seed – monocotyledon. A broadleaved weed pushes through the soil surface two seedleaves - dicotylendon.



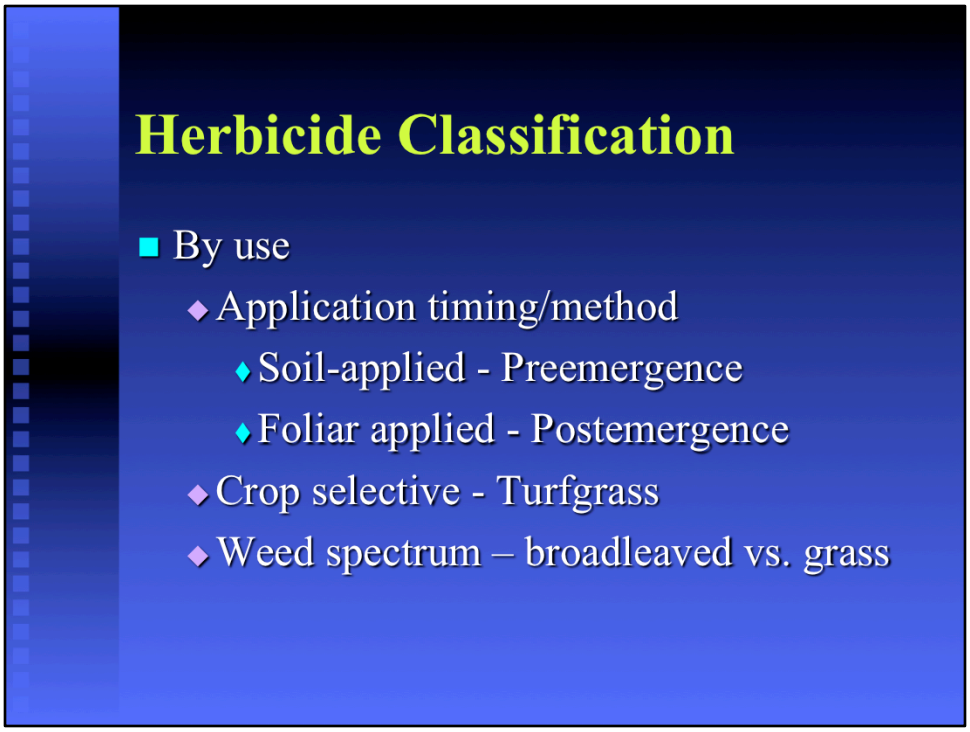
Examples of winter broadleaved weeds are London rocket, shepherd's purse, cheeseweed, sowthistle, bur clover, black medic.
Summer grasses include the crabgrasses, cupgrass, goosegrass, and watergrasses (barnyardgrass or junglerice).
A prolific summer broadleaved weed includes several of the spurges.
A summer perennial that invades many turf areas include purple nutsedge. Yellow nutsedge is less prevalent and easier to control than purple.



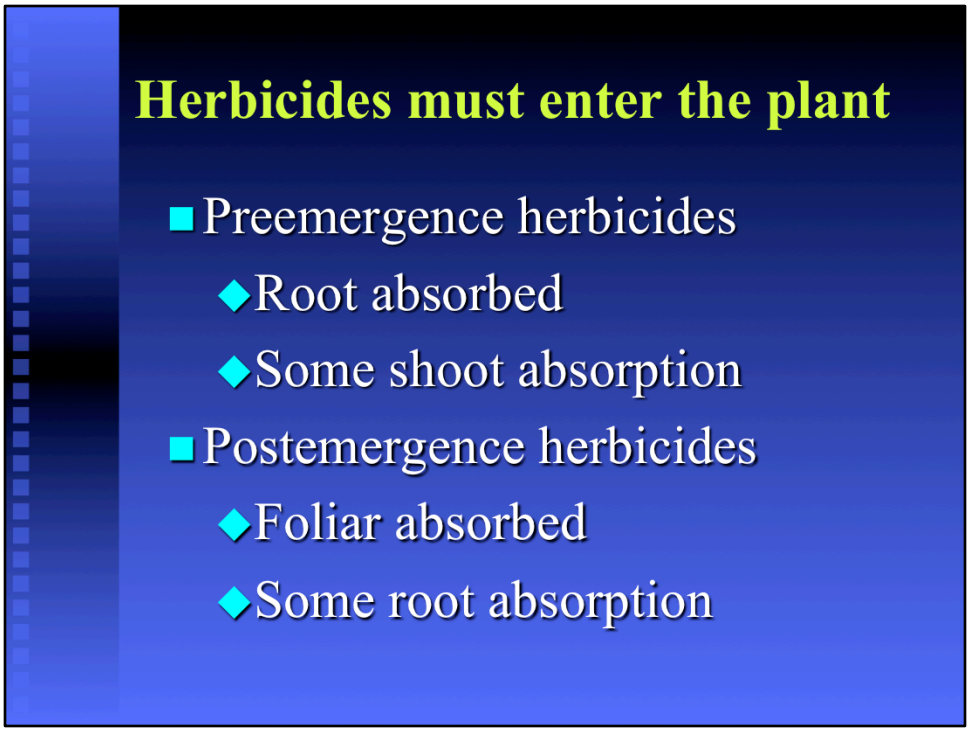
Important reference books to identify weeds are the Weeds of the West available from the Western Society of Weed Science that should be carried in every truck in the field.



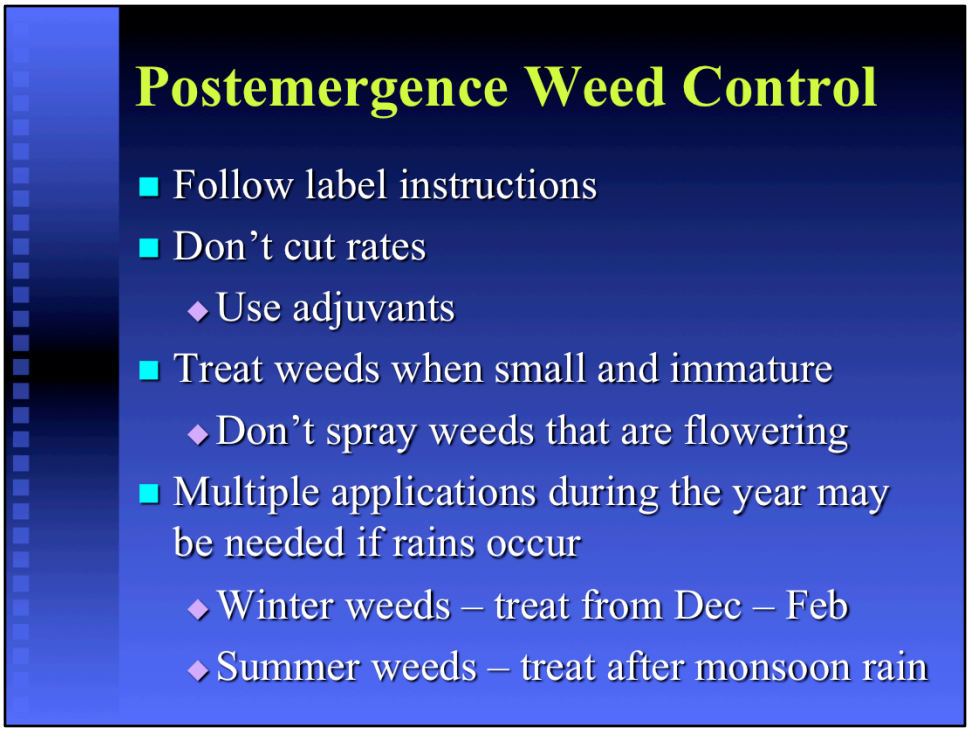
A second valuable reference in a supervisors' office should be the 2 volume Weeds of California and Other Western States that is also available through the Western Society of Weed Science.



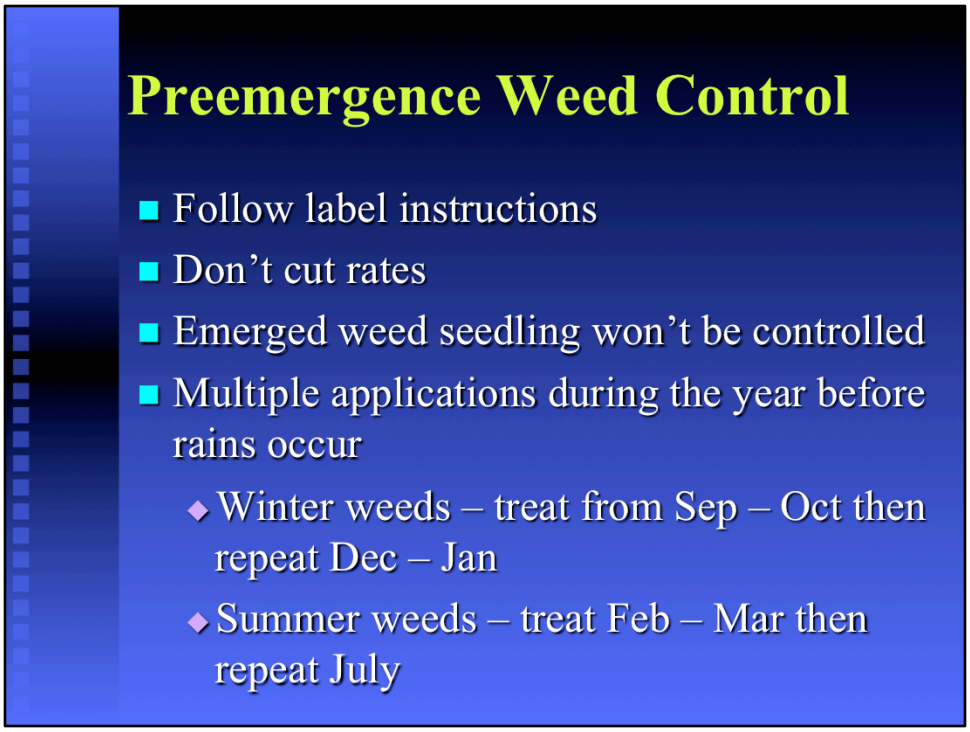
Just classifying weeds, herbicides may be categorized by their use, crop selectivity, or the weeds they control.



Preemergence herbicides are generally applied to the soil for the emerging roots to absorb.
Postemergence herbicides enter the leaves of the treated plants.

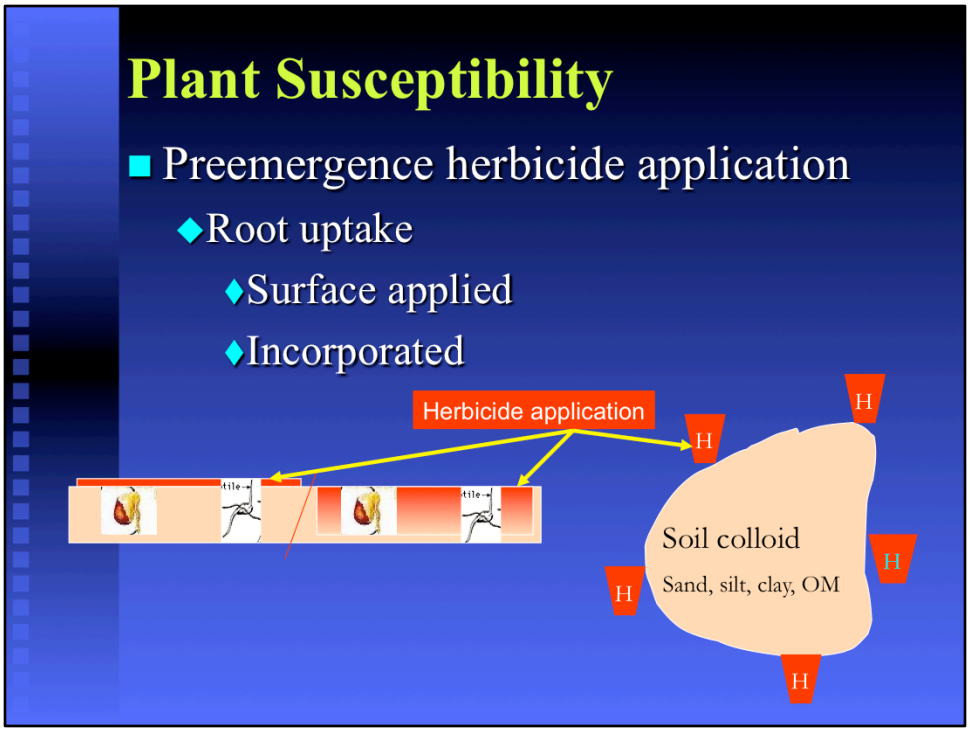


As always, it is important to read the product label and then follow the instructions to obtain the best results.
The rates to be applied should not be reduced so that the weed can survive a sublethal dose. This survival may result in tolerant or herbicide resistant weeds.
POST applications are more effective when small weeds are treated – generally 2-4 leaves and smaller than 4-6 inches height.
Its probably easier to remove mature weeds by mowing.
Most rains during the winter or monsoons will be followed by germinating weeds. Its best to be prepared to treat weeds shortly after rains occur.

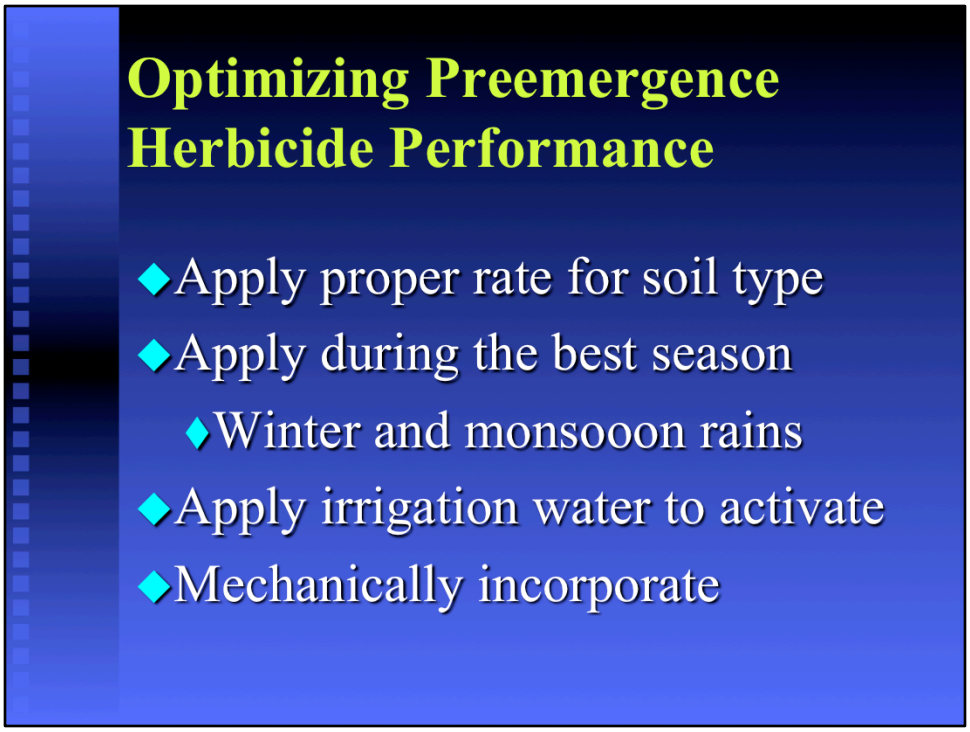


Preemergence weed control is critical to time the applications prior to rains. The rains will enable the herbicide to be "moved" into the weed seed germinating zone in the soil. Later monsoon rains in September to October can prevent early emerging winter weeds. The herbicides do not last all winter so a sequential application during the winter can extend the length of control.

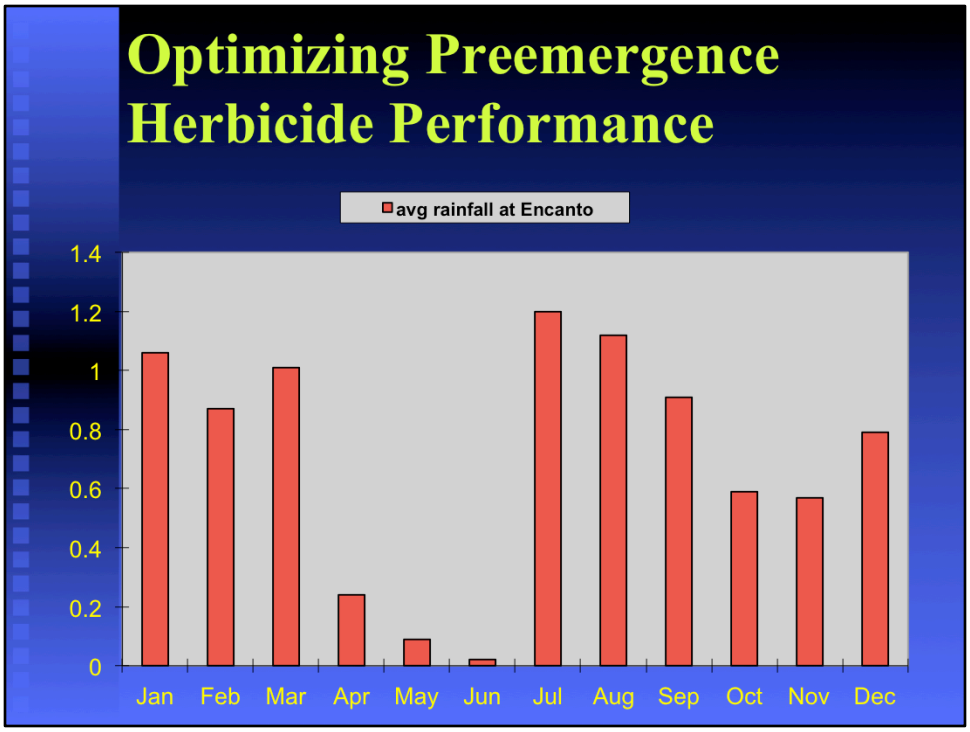
Summer grasses and spurges can be prevented when early spring rains in February to March can "activate" preemergence weeds and then July monsoon rains can extend control through the fall.



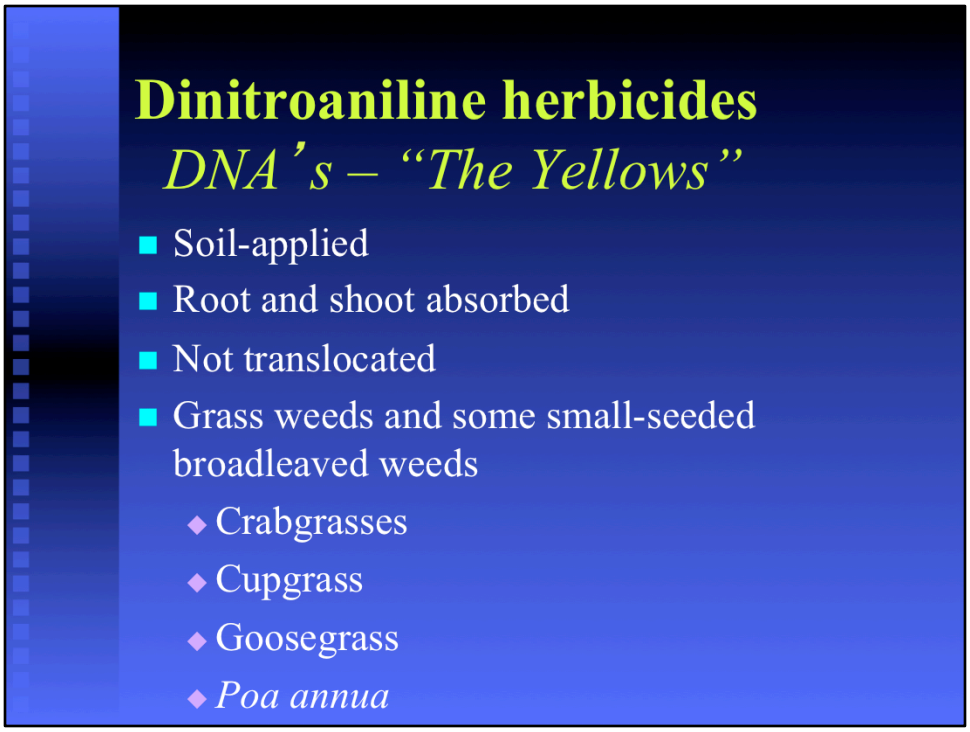
Preemergence herbicides are sprayed on to the soil surface and then the rains can move it into the weed seed germinating zone or if rains are not forecasted, mechanically scratched into the soil zone so that it can bind to the soil to be available to the weed seedlings.



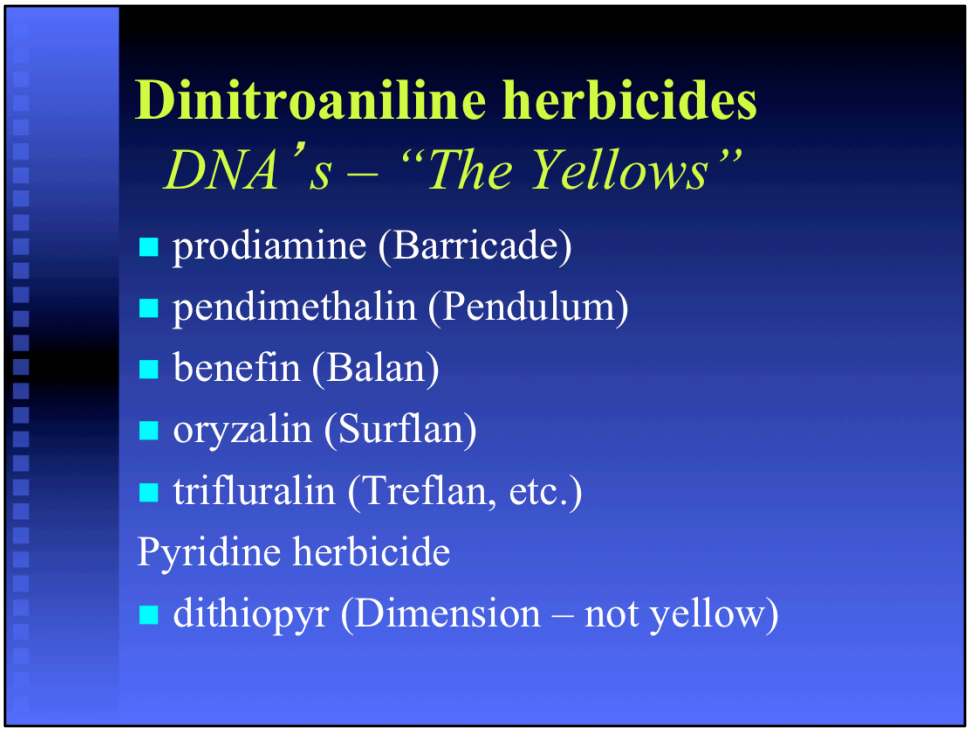
Read and Follow Label Instructions!
Incorporation or “activation” as soon as possible will optimize preemergence herbicide efficacy. Sunlight will eventually breakdown the active ingredient of the herbicide if left on the soil surface for an extended time.



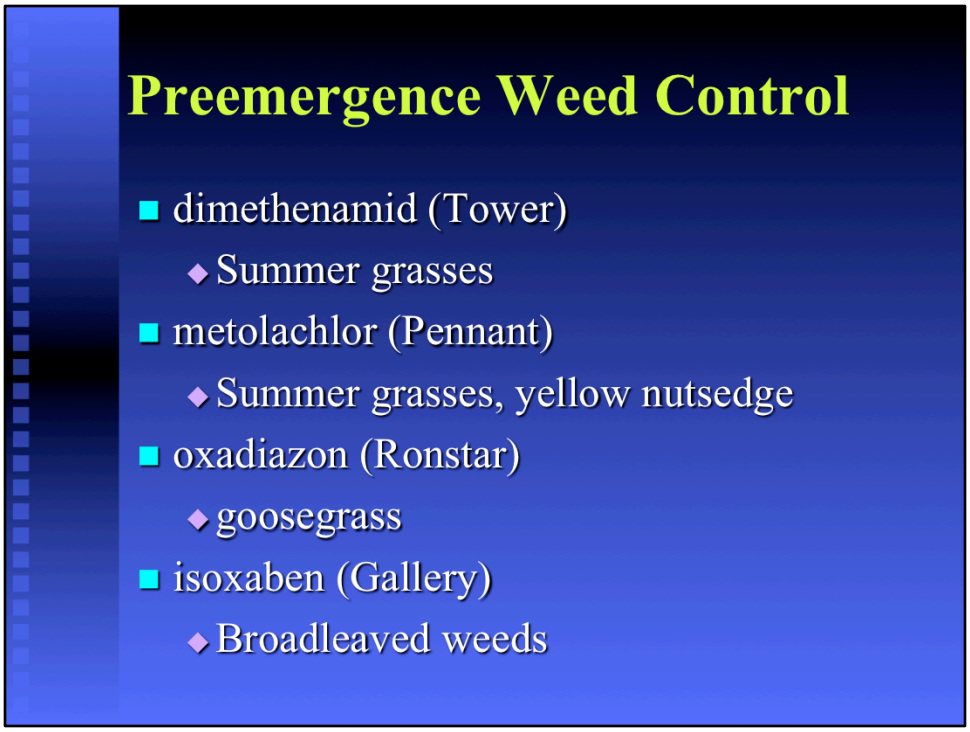
AZMET (Arizona Meteorological Network) accessible from http://turf.arizona.edu provides weather data for many sites around Arizona.



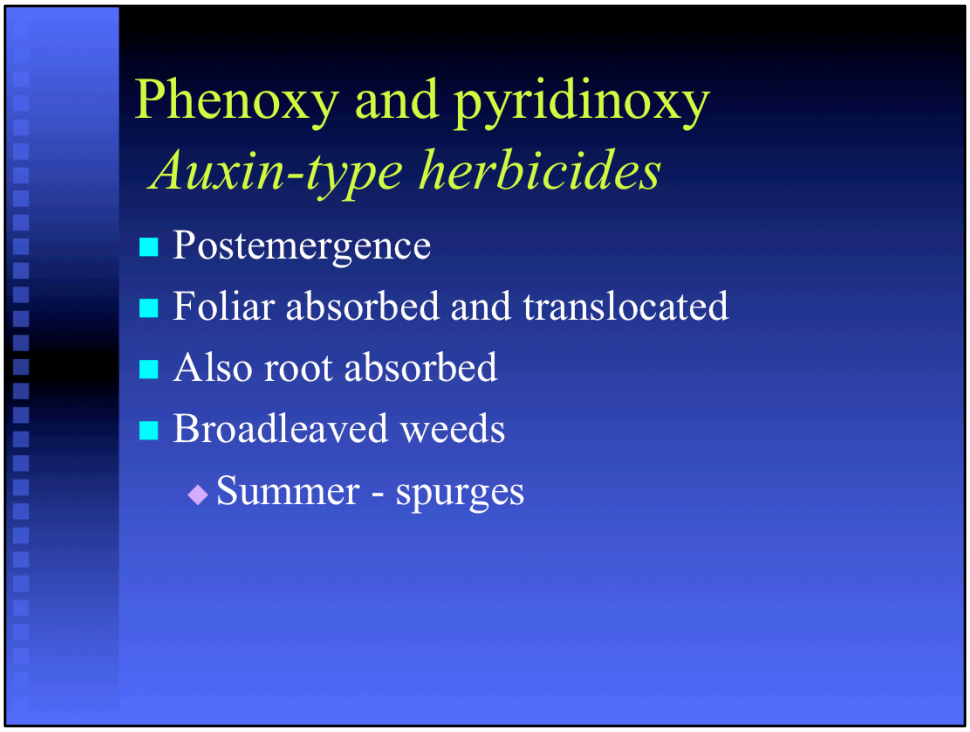
The DNA's are among the most commonly used preemergence herbicides that are very effective when used according to label instructions.
Timing is important to apply before weeds emerge.



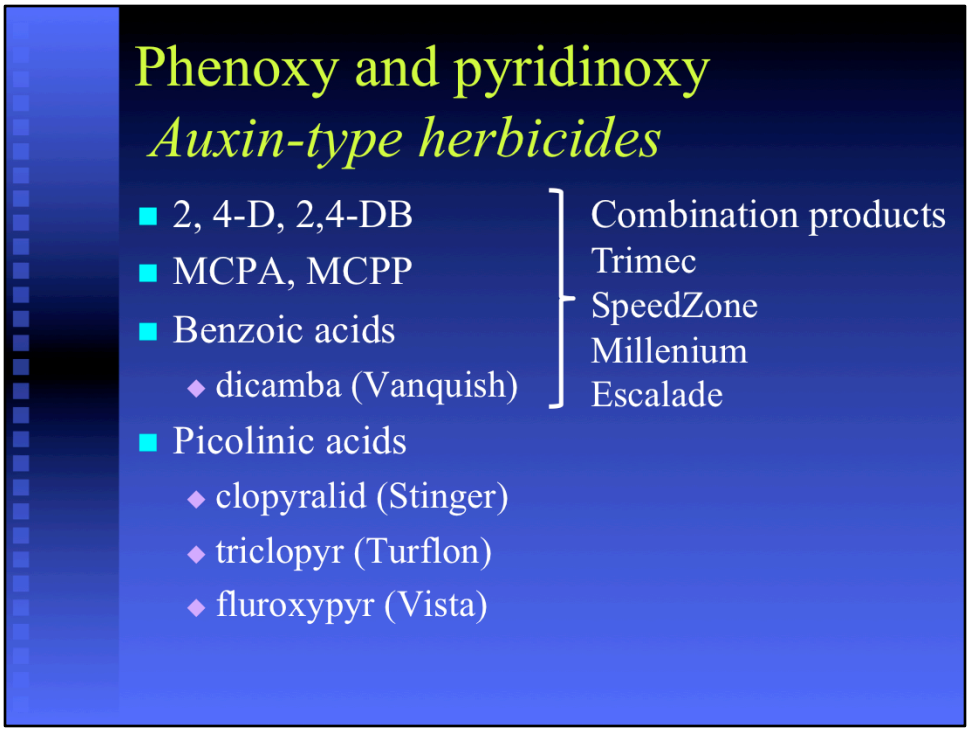
Commonly used products that offer very good grass weed control when applied preemergence.



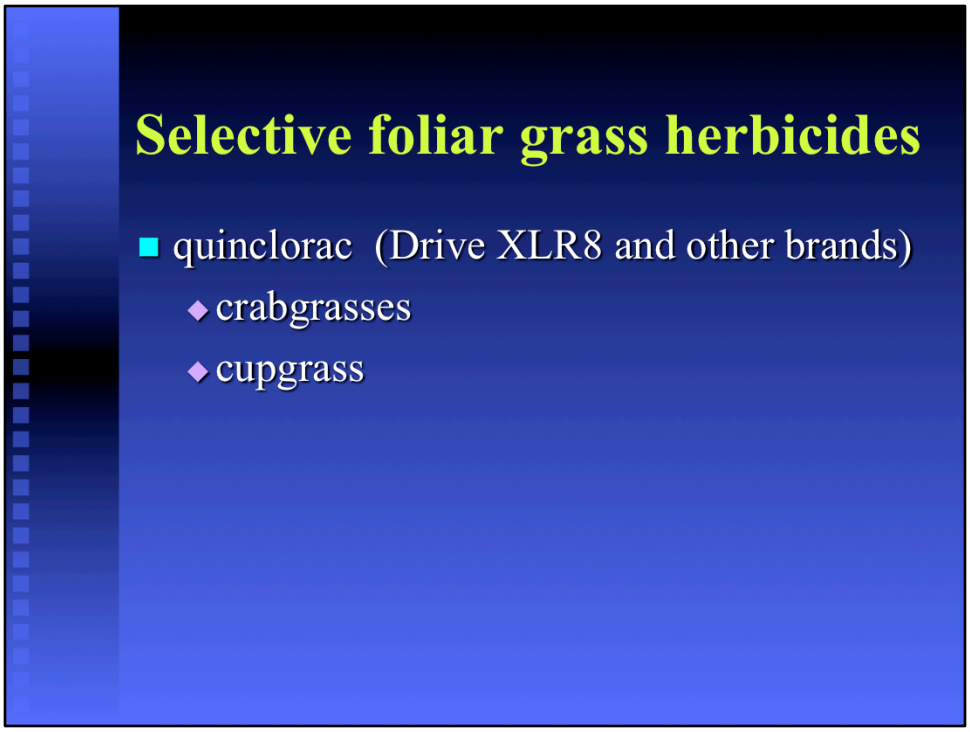
Grass herbicides that can be used in rotation with the DNA's to control particularly summer weeds.
Goosegrass generally emerges in the later spring – May-June so early spring applied preemergence herbicides may need to be supplemented by another treatment.
Gallery is very good against broadleaved weeds and not against grasses.
Pennant will offer preemergence control of yellow nutsedge only.



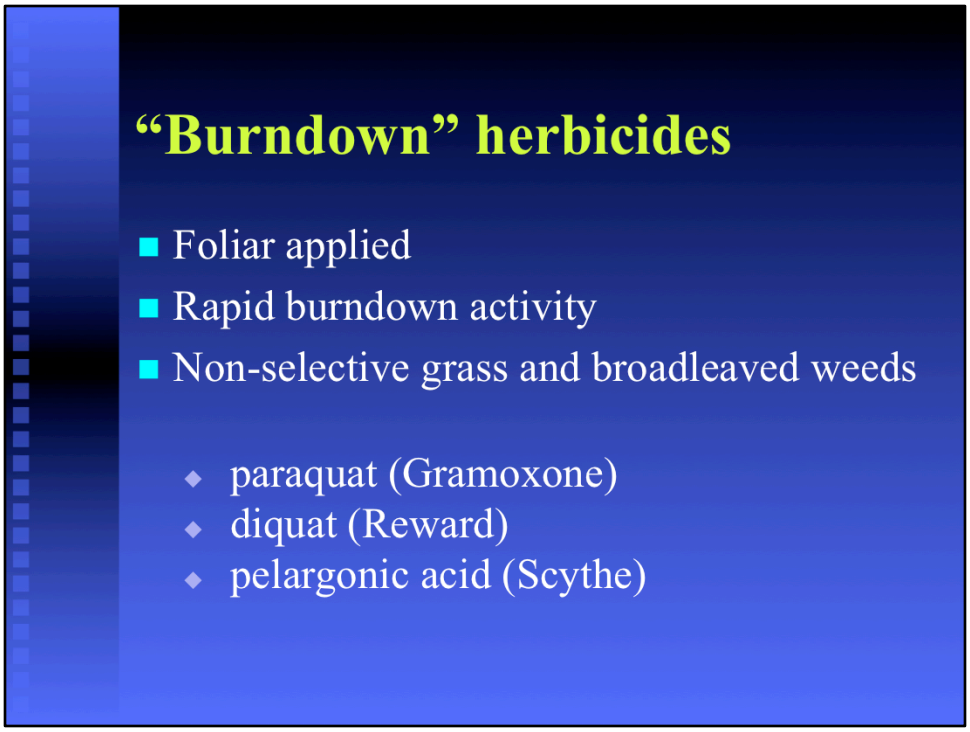
Winter and summer broadleaved weeds are susceptible to these POST herbicides. There are temperature limitations as to when they can be used in cooler temperatures rather than under hot conditions.
Off-target drift may occur and caution must be exercised.



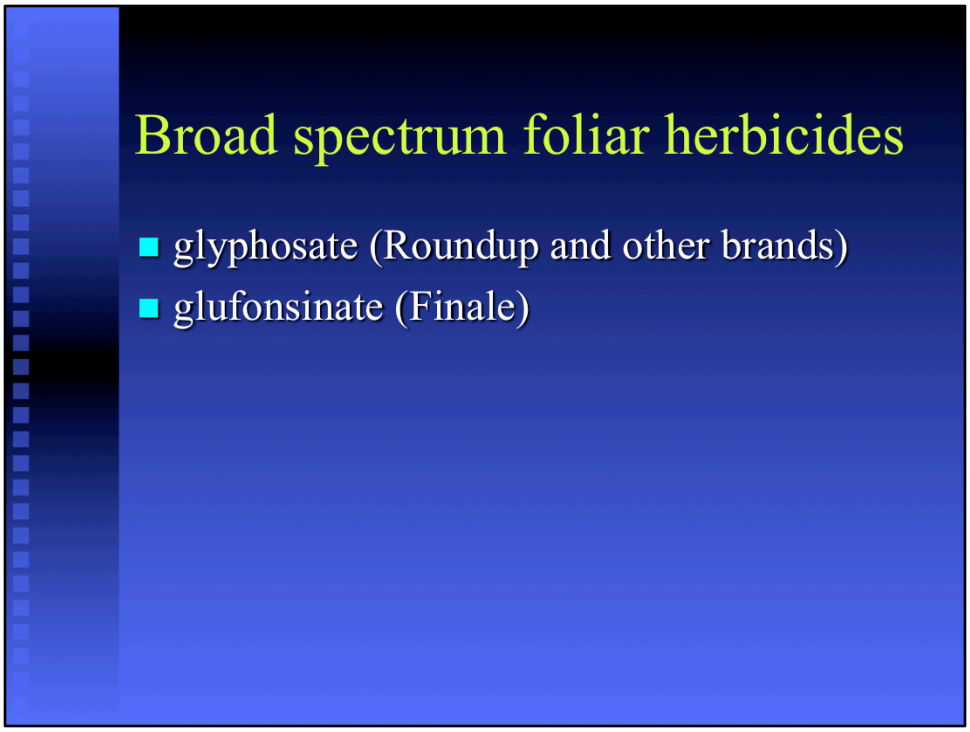
The products are commonly sold as pre-mix herbicides that include 2,4-D or MCPA, MCPP and/or dicamba.
Most control many of the common broadleaved weeds in the winter and in the early summer.



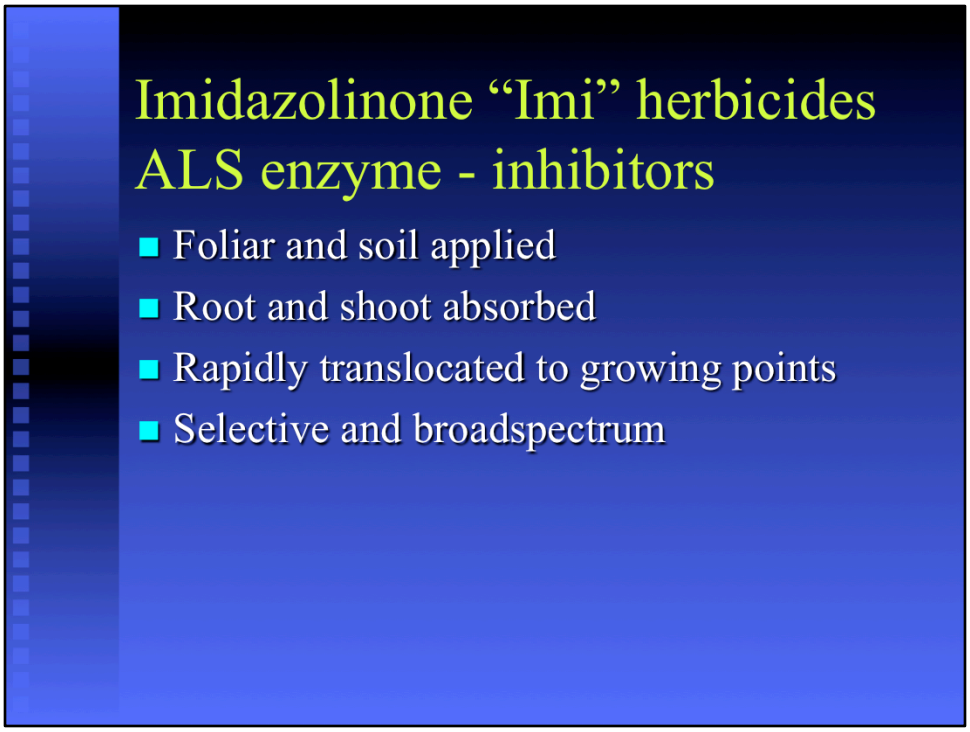
Crabgrasses and cupgrass look very similar before they start to flower. One and sometimes 2 applications of quinclorac containing herbicides when applied to small 2-4 leaf grasses will provide very good control.



Reward and Scythe can rapidly control small emerged weeds and severely injure turfgrasses.



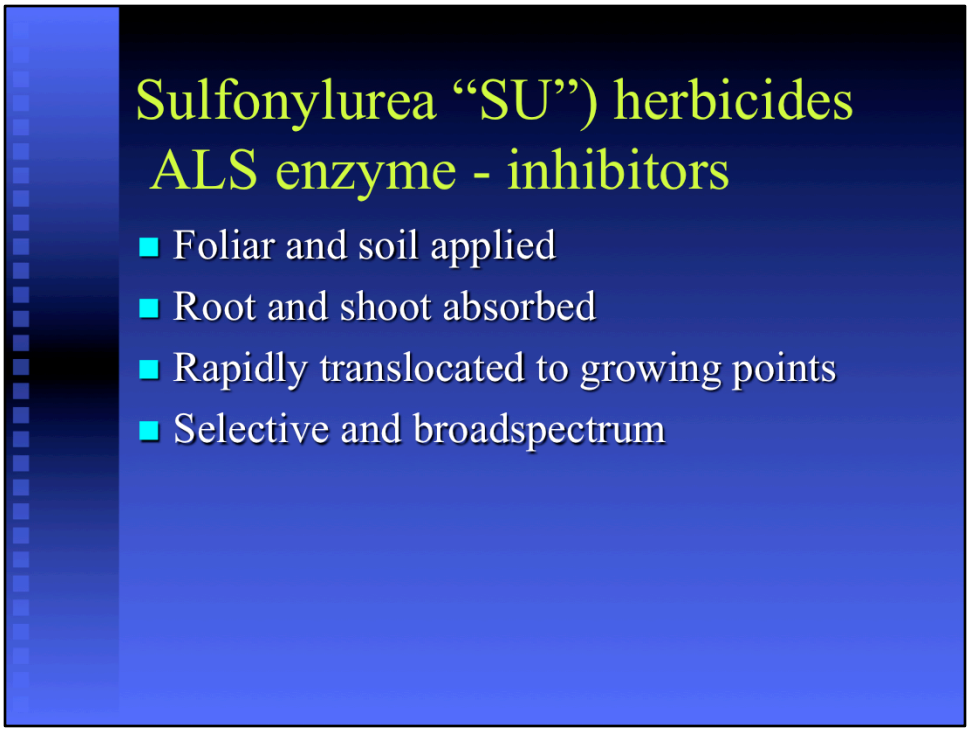
These foliar applied herbicides control most weeds.
It is good to not continuously use glyphosate and allow weeds to escape treatment.
Herbicide resistance is in Arizona with Palmer amaranth tolerating glyphosate treatments in crops.
Use of different modes of action will reduce the potential for weeds to become resistant to herbicides.



These herbicides became available in the 1980’s

“Imi” herbicides

- imazaquin (Image vs nutsedge)
- imazapyr (Arsenal total veg control)
- imazethapyr (Pursuit, a component of Dismiss South)



Similar to the IMI's, several of these herbicides came in the 1980's and also include new introductions in recent years for turf.

The SU's and IMI's have a potential to be overused with many versatile uses during many times of the year on various weeds and for spring transition.
When opportunities arise to use different chemistries, switch so that herbicide resistance will not develop in weeds.

Comparison of Herbicides for Nutsedge Control

*Image** 70 DG imazaquin	*Dismiss South** FL imazethapyr	*SedgeHammer** 75 WDG halosulfuron	*Monument** 75 WG trifloxysulfuron	*Certainty** 75 WDG sulfosulfuron	*Katana** 25 WDG flazasulfuron
0.5 lb AI/A 11.4 oz/A 0.26 oz/ 1000ft^2	9 – 14 oz/A 0.2 – 0.3 oz/ 1000ft^2	0.062 lb AI/ A 1.3 oz/A 0.03 oz/ 1000ft^2	0.026 lb AI/A 0.56 oz/A 0.013 oz/ 1000ft^2	0.096 lb AI/A 1.25 oz/A 0.028 oz/ 1000ft^2	0.046 lb AI/A 3 oz/A 0.068 oz/ 1000ft^2
No limit stated	No limit stated	4 applications 5.3 oz/A total *Tribute Total**	1.7 oz/A total	2.66 oz/A total/year	3 applications 9 oz/A per season

Use these IMI and SU herbicides beginning around the 4th of July and then repeat with a sequential application in August, 4-6 weeks later.

Prior to the summer solstice when daylengths begin to shorten, use Dismiss CA (not Dismiss South) to burn down the foliage of the sedge and mow low frequently to put a stress on the emerging sedge.

When days shorten and the sedge translocates food to the developing tubers for the winter, the IMI or SU herbicide will also move and prevent tuber growth.

More information can be accessed at the University Arizona Turfgrass Research, Extension, and Education website