WEED CONTROL AND OVERSEEDING ALTERNATIVES

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Weed control on high–quality turf should be a standard part of the management plan at most turf sites. A thorough understanding of the principles of turf weed control will allow the manager to develop a sound, well–designed program that should yield a high–quality weed free turf. Overseeding is often done on high–use turf to replace injured or thinned turf. Several methods of seed preparation can be used to speed up the process and one must make sure that previous weed control applications will not reduce or eliminate the establishment of the overseeded turfgrasses.

Herbicides used in turf can be based upon the types of weeds controlled and the timing of application with respect to the weed. Preemergence applications are made prior to the germination of the weed. These herbicides tend to be water insoluble so rainfall and irrigation generally do not move these herbicides below the soil surface. Preemergence herbicides have to provide control for 1–3 months to be valuable since they are applied before weed seed germination and weed seeds will germinate for an extended period of time during the growing season. In general, selective herbicides control either broadleaves or grasses but usually not both. The herbicides listed in table 1 are currently labeled for use on most cool–season turfgrasses. Notice that all but one of the preemergence herbicides is a grass control herbicide. Isoxaben (trade name – Gallery) is the only broad spectrum broadleaf herbicide available for use in turf.

Postemergence herbicides vary more widely in their properties than do the preemergence herbicides so it is difficult to generalize about their properties. Again, these herbicides can be categorized as to whether they control broadleaf weeds or grasses (Table 2). For information on control of specific weeds by these herbicides you should consult the commercial turfgrass pest control literature available from your county extension agent.

Overseeding is an important tool in renovating deteriorated turf. Traffic, disease, insects, or other stresses can result in a loss of density and create a need for overseeding. Overseeding can be as simple as throwing out some seed by hand in bare areas. Typically however this approach does not yield good results because of poor seed/soil contact. The better the seed can be incorporated into the top 1/4" of soil the better germination and establishment will occur. The preferred method for overseeding is to use a commercially available slicer–seeder. These machines use circular blades to slice a shallow slit into the turf and then drop seeds into the opening. This gives excellent seed to soil contact and usually results in good germination and establishment. Hydroseeding can be used for overseeding but again seed to soil

contact is not the best. Coring can be done in conjunction with overseeding but this should only be done if compaction is a concern on the site. Studies have shown that coring and seeding into the broken up cores is not as effective as vertical mowing followed by seeding. Again if a slicer–seeder is available these give the best results.

Some turf managers, particularly athletic field managers, may want rapid germination and establishment. There are several types of seed treatments that can be used to speed germination and establishment. The first method is to simply soak the seeds in water to get them to imbibe water. Water imbibition usually takes 1–3 days in the field so this procedure can reduce the time to germination by that amount. The procedure is simple. Place the seed in a bag to soak in water for 12 hours and then drain the bag and put out the seed. As mentioned this approach will shave 1–3 days off of the normal establishment time.

A more complicated procedure is called pregermination. This approach actually germinates the seed under controlled conditions before putting the seed in the field. Pregermination usually takes 4–5 days before the seed is ready to put in the field but since the seed is already germinated, establishment is very rapid. To pregerminate seed, place the seed to be pregerminated in a burlap or seed bag and place the bag in a tank of water maintained at 70–80 F. The water needs to be aerated so the seeds have oxygen available. Usually an aquarium pump is adequate to provide air to the tank. Every 12 hours the seed should be removed from the tank and allowed to drain. The water in the tank should be replaced with fresh 70–80 F water and the seed returned to the tank. On the fourth day periodically remove some seed from the bag and check for radicle emergence. Once you begin to see the emergence of the radicle from the seed, then germination has occurred and it is time to seed. The seed should drip dry and then be mixed with Milorganite or some other suitable carrier and spread out over the area to be seeded. Care must be taken to keep moisture on the soil surface since the pregerminated seedlings are very sensitive to moisture stress.

Another method which has not really caught on is called seed priming. This technique showed promise because primed seed has a shelf life of about six months so that it wouldn't have to be used immediately and therefore could be prepared commercially instead of by the end–user. However in tests at MSU, primed seed showed only about a 1 day germination advantage over unprimed seed. In addition, the primed seed did not seem as vigorous after germination as unprimed seed. Therefore, this technique is no longer used in the turfgrass industry.

Whatever approach you use, the key to successful overseeding is to ensure good seed–soil contact and to keep the surface soil moist. If preemergence herbicides have been used within 2 months of overseeding, they will kill many of the turfgrass seedlings. If you must seed, one approach that can work is to apply activated charcoal to the site prior to overseeding (or with the seed if you're using a slicer–seeder) to try to tie–up any residues that may harm the seed.

TABLE 1. PREEMERGENCE HERBICIDES FOR WEED CONTROL IN COOL-SEASON TURF.

COMMON NAME	TRADE NAME
benefin	BALAN
bensulide	BETASAN
DCPA	DACTHAL
dithiopyr	DIMENSION
oxadiazon	RONSTAR
pendimethalin	PRE M, SCOTT'S WEEDGRASS CONTROL
prodiamine	BARRICADE
siduron	TUPERSAN
benefin + trifluralin	TEAM

BROADLEAF CONTROL HERBICIDES

COMMON NAME	TRADE NAME
isoxaben	GALLERY

TABLE 2. POSTEMERGENCE HERBICIDES FOR WEED CONTROL IN COOL-SEASON TURF

GRASS CONTROL HERBICIDES

COMMON NAME	TRADE NAME
MSMA	DACONATE 6, METHAR 30 ETC.
fenoxaprop ethyl	ACCLAIM

BROADLEAF CONTROL HERBICIDES

COMMON NAME	TRADE NAME
2,4-D	used in mixtures
2,4-DP	used in mixtures
MCPA	used in mixtures
MCPP	used alone for weed control in bentgrass; used in mixtures
triclopyr	TURFLON; mixed with clopyralid-CONFRONT
clopyralid	mixed with triclopyr-CONFRONT
dicamba	BANVEL; used in mixtures
bromoxynil	BUCTRIL