What's New in Weed Control?

Faulty application will never get the job done. Note streaking and good control of Poa annua where material was applied but note the prevalence of Poa annua in the misses.

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The concept of the pre-emergence herbicide is not new. It has been a reality and in practice for more than 30 years. The name, however, is new, and as a result of the advances in research, the term "pre-emerge control" has evolved. It means something to everyone engaged in turfgrass work as a special class of herbicides.

Herbicides are generally classified as post emergence and pre-emergence materials. As the names imply, the post emerge herbicides are applied after the weeds have emerged, germinated or grown while the pre-emerge herbicides are applied in advance of weed seed germination. The action of the pre-emerge herbicide is especially attractive because, if it works as it's supposed to, the weed is killed early, its life cycle is short circuited before it's had a chance to produce seed. This specifically is the reason why annual plants such as crabgrass and *Poa annua* are troublesome, because of their prolific capacity for seed production.

In the early days of golf course management, lead arsenate was used principally for earthworm control, but with repeated use it was noted in isolated cases that this material had a definite deterrent effect on crabgrass and *Poa annua*. After some study it was decided that its action was one of killing the seedling plants soon after germination, and so lead arsenate was the first of the pre-emerge herbicides to be used on golf courses in the United States.

It is interesting to note that in the 1921 Bulletins of the Green Section of the United States Golf Association, Piper and Oakley wrote that "crabgrass is perhaps the worst of all summer weeds on putting greens, but on fairways it is the main desirable despite the fact that the heavy turf keeps the ball from rolling much."

Some could conclude that this weed became the serious pest that it is today because of the early respect of such noteworthy turf specialists. However, a more plausible explanation is the sure fact that there was nothing they could do about it: They had to live with it. Crabgrass remained a serious problem through the late 1940's when chemicals were developed which gave promise of good control.

Poa annua falls in the same category. It, too, enjoyed a great head start because there were no early positive selective controls. Now this is changing. We have good chemical controls and some are of the post and some of the pre-emerge variety; but after 30 years of uninhibited growth and seed production, is it any wonder that we are still in serious combat with *Poa* and crabgrass?

Pre-emerge herbicides have been especially prominent in the control of *Poa annua* and silver crabgrass. Some of the materials being used are lead arsenate, calcium arsenate, DCPA, DMPA, bandane, bensulide, terbutol, benefin, trifluralin, siduron and others being tested by researchers that are presently identified only by code number.

Among the new ones there is a class of herbicides available that will prevent *Poa annua* from producing seed. The advantage of a pre-emerge herbicide is that the active control agent comes in contact with the weed in the seedling stage when it is most vulnerable to herbicidal action. However, its effect on desirable grasses is not all positive; there is some negative effect, principally with root restriction. Also, because seeds of crabgrass and *Poa annua* germinate over a period of several months, there is a period of residue presence for each of these pre-emerge herbicides (except siduron) which also makes it all but impossible to improve the turfgrass stand by overseeding desirable grasses during this time. Hence, the period during which the renovation program is in effect becomes a trying one for the superintendent and golfer alike.

These new herbicides positively will kill *Poa annua*. It then becomes important to advise all concerned that where *Poa annua* comprises a large portion of the turf, the transition to a desirable turf stand will take a minimum of *from two to five years!* Pre-emerge herbicides require accurate dosage adjustments in relation to turf species, weeds, and environmental conditions such as temperature, soils and moisture. The year 1969 was very poor for pre-emerge treatment in most of the Northeast. Unusually heavy rainfall completely nullified the herbicidal effect of some pesticides; the arsenicals, on the other hand, became more active with increased available moisture. Therefore, there is always an element of chance concerned with the use of the pre-emerge materials because nature plays such an important role in their action in any given year. Before any large-scale work is undertaken, it is advisable to test promising materials for a few years in order to work out important details for your specific conditions.

We have come a long way in the selective control of weeds. We have a long way yet to go, but the prospect of a weed-free golf course is becoming less and less the impossible dream.

Poa annua—a perennial problem—this fairway went out without benefit of herbicide so it will be back from seed to repeat this performance annually when summer stress is on. This is one of the reasons why this grass is considered a weed.