STRATEGIES FOR TURFGRASS RENOVATION

If you read the trade publications or literature from equipment and chemical companies, you know all about renovation. Promotional literature makes it all seem very simple. All you have to do is spray out the existing turf with a non-selective herbicide, dethatch and/or core the area, plant the grass of your choice, fertilize and water, and Presto!, you have a stunning, beautiful lawn that is dense, green, and weed-free.

Does it really work like that? Is renovation a fool-proof method for improving or replacing turf infested with weedy grasses or damaged beyond repair by insects or diseases? Is it the easy way to convert your lawn to the latest miracle grass created by turfgrass breeders? The answer is yes or no, depending on what you do, when you do it, and how carefully you do it. Like all cultural practices, renovation requires good judgement and proper timing to give top quality results. The purpose of this paper is to guide you through some of the critical steps in renovation and to point out where mistakes are likely to occur. In addition, it will summarize the key steps necessary to achieve success with renovation.

What is Renovation?

Renovation involves establishing new turf from seed without removing the old sod or preparing a seed bed via tilling and grading. We normally renovate turf areas in order to 1) improve the quality of existing turf and/or 2) change the grass species or cultivar to achieve a new look, improve wear tolerance, increase disease resistance, etc. To achieve these goals, there are three basic strategies you might use.

1) Simple Overseeding. The plan here is to simply introduce seed into existing turf by whatever means you have available. The most effective planting technique is to use a slicer-seeder machine which cuts a slit in the turf and drops seed directly into the slit. Seeding can also be done by coring the turf area, broadcasting seed, and then dragging the seed into the aerifier holes and turf canopy. In heavy wear areas, seed can be broadcast on the surface, followed by sand or soil topdressing. Of the three techniques, slicer seeding is probably the most reliable. Simple broadcast seeding is sometimes very effective when used on the center of football fields once most of the turf has been destroyed through heavy use. Overseeding is generally least effective on dense turf areas, such as putting greens and home lawns.

2) Overseeding Following Suppression of Existing Turf: This technique is useful when you want to change the species composition of a turf that is dense and vigorous at the time you wish
to renovate. The existing turf must be suppressed long enough to allow germination and early establishment of the overseeded grasses. The most common procedure here involves severe dethatching, followed by scalping to thin out the existing grass enough to allow establishment of the overseeded grass. A general rule of thumb is to get down to bare soil with the dethatcher before seeding. Because plant competition may be severe, it is important to select overseeding grasses that germinate rapidly and are competitive in the seedling phase. Perennial ryegrass is often the only suitable grass for this method, but we have had success with chewings fescue seeded into Kentucky bluegrass.

The best method for planting is probably
the slicer-seeder operated in two directions
because it assures good contact between
seed and soil.

It's difficult to get uniform establishment with broadcast seedings unless they are mulched with a thin layer of sawdust or other available material to help maintain a moist surface environment for germination. It is important to avoid heavy fertilizer applications at the time of seeding because the existing grasses will grow too much and may out- compete the seeded grasses.

Chemical suppression of existing grasses with a plant growth regulator prior to renovation is an idea that has some merit. We haven't conducted any trials to see how well this would work. If successful, this could streamline the renovation process by reducing or eliminating the need for the dethatching or scalping process. Potential negative effects of the growth regulators need to be determined.

3) Complete Renovation: In this case, you generally will kill the existing turf via a non-selective post-emergent herbicide, dethatch to remove thatch and debris down to the soil level, fill in any potholes, plant the seed, fertilize, water, and watch for your new lawn. When all goes well, this is a very effective method of renovation, but there are several steps you need to perform properly to get the results you want.

One of the most important steps in this approach involves killing the existing grasses. There is a big difference between spraying and killing weedy grasses. In the rush to get the job done and look professional, most people simply spray the existing turf with glyphosate and a week later prepare and seed the area. Often, within a year the undesirable weedy grasses have recovered and you have the same mess you started with. Obviously, you didn't kill the grasses you were trying to get rid of. What is the secret to controlling weedy grasses prior to renovation? First, you need to know what the weedy grasses are. Bentgrasses, roughstalk bluegrass, velvetgrass, tall fescue, quackgrass, bermudagrass, and, of course, annual bluegrass are our most common weedy grasses in the Pacific Northwest. Bentgrasses, quack grass, and bermudagrass have rhizomes (underground stems) that may not be affected by foliar sprays if conditions aren't perfect. Velvetgrass has a pubescent leaf surface that may not absorb herbicides readily. velvetgrass under drought stress may not absorb glyphosate and thus will often survive sprays. Annual bluegrass is easy to kill, but will quickly reinvade from seed if pre-emergence herbicides are not used to prevent germination. To get a thorough kill of weedy grasses, you need to stimulate
vigorous growth with water or fertilizer, quit mowing for a few weeks, and time sprays properly. Most grasses are easy to kill in the spring when they start to flower, and in the fall when growth slows. At both times, translocation of herbicides to crowns, roots, and rhizomes occurs, which enhances herbicide activity and maximizes kill of regenerative structures. Velvetgrass (*Holcus lanatus*) is difficult to kill most of the time, but is susceptible in the spring when flowering occurs. I prefer to spray in the spring at flower time, wait for several weeks, and respray as needed if recovery occurs. If your goal is to get rid of unwanted grasses, you need to pay attention to the above comments. If you don't, you may find you wasted your time. Remember that the easiest grasses to kill in a lawn are often the desirable ones.

Annual bluegrass presents a special problem because it often comes back from seed after mature plants have been killed with herbicides. Until recently, there was no way to control annual bluegrass in new seedings, either chemically or culturally. With the development of ethofumesate (i.e. Prograss) we now have a chemical that can be sprayed on new seedings and renovation sites and selectively control annual bluegrass from germination up to the 3-4 leaf stage. Best results occur when new plantings of perennial ryegrass are sprayed at the 1-2 leaf stage. Ethofumesate works best on moist soils low in organic matter. We normally irrigate after application to work this herbicide into the soil. Our tests show that commercially available cultivars or perennial ryegrass are quite tolerant to ethofumesate, even at the one leaf stage of development. Limited tests indicate tall fescue is also tolerant, but other cool season grasses, particularly the fine fescues, are not tolerant to ethofumesate. Currently, it is registered for use only on seedling stands of perennial ryegrass. Testing at OSU has consistently given 100% control of annual bluegrass in new seedings and renovated sites that were broadcast seeded. On no-till renovated sites planted with a slicer-seeder, we generally get 90-100% control of annual bluegrass.

**Keys to Successful Renovation**

Regardless of the type of renovation you are attempting, there are several key steps that you should keep in mind to assure success. Some of them have already been discussed, but are worth reiterating here.

1) **Choose Grasses Suited to Renovation:** Grasses that germinate rapidly and establish quickly increase your chance for success. Throughout the Pacific Northwest, perennial rye grass has the highest success rate regardless of the actual type of renovation. Of the fine fescues, red and chewings are most competitive and will work where turf is suppressed or sprayed out prior to seeding.

Hard fescue works best when existing grasses are killed prior to planting. Tall fescue is similar to red and chewings fescue. Bentgrass can work on suppressed turf or where existing turf has been killed. It is often quick to germinate, but somewhat slow to develop. We have had good success with bentgrass/ryegrass mixtures broadcast on complete renovation sites. Generally, the ryegrass dominates early and the bentgrass shows up as the turf matures. Kentucky bluegrass is difficult to establish on overseeded or suppressed turf sites because it is so slow to germinate and has a weak juvenile period. Your best chance with bluegrass is on completely renovated sites where existing grasses have been killed, eliminating competition.
2) **Insure Good Seed Soil Contact:** Establishment of renovated sites is often slow and stands are often very spotty. Many times this is due to poor germination because seed was sitting on the surface of compacted soil or hung up on top of thatch or organic debris. Planting with a slicer-seeder will generally avoid this problem, though small seeded grasses like Kentucky bluegrass may not emerge from deep slits. The slicer-seeder is perfect for perennial ryegrass. Broadcast seedings are generally much more successful when mulched with sawdust, compost, or straw. In fact, this is one of the most important keys to success on renovated sites. In spite of the ease of renovation, it is very difficult to produce a seed bed as good as that achieved by tilling and grading. For this reason, you need to do everything you can to enhance uniform and rapid germination.

3) **Seed Relatively Heavy:** Since surface conditions on renovated sites are often suboptimal, I try to compensate in anyway I can. My rule of thumb is to increase seeding rates by about 50% of the normal seeding rate. In the case of perennial ryegrass, I usually increase the seeding rate from 5 lbs/1000 sq. ft. to 7-8 lbs/1000 sq. ft. A similar approach works for most other grasses.

4) **Plant At Optimum Times:** Spring and fall are good times for renovation. Throughout the Northwest, August 15-September 15 is hard to beat. The combination of warm days and cool nights promotes rapid germination and development. Mid-summer is a very poor time because it's hard to keep seed moist enough to germinate without increasing the chances of damping off from fungal pathogens. If you renovate in mid-summer, either use treated seed or spray fungicides for damping off shortly after planting. Remember that root initiation is poor in the heat of summer, so stand development is slow. Often, lawns renovated in July are no further along in October than lawns renovated in mid-August. April through mid-June works very well in many areas and is a great time to renovate athletic fields needed for fall sports.

5) **Fertilize Intelligently:** On complete renovations where existing grasses have been killed, I encourage people to push young plantings to speed fill-in and promote dense turf. This usually means a complete fertilizer applied at planting with nitrogen rates of 1-2 lbs N/100 sq. ft. followed 4-5 weeks later with a second application at the same rate. On simple overseedings and renovations on suppressed turf, fertilizer is counterproductive. Nitrogen will stimulate growth of existing grasses and help them out-compete the seeded grasses. On these sites, I try to starve the existing grasses by withholding fertilizer and removing clippings during mowing. Once the seeded grasses are up and somewhat mature, resume fertilization but don't push the stand. High rates of nitrogen may favor the existing grasses more than the seeded grasses. This is more of a problem with the fescues, bentgrasses, and bluegrasses than with perennial ryegrasses.

6) **Water Carefully:** Properly planted, renovated sites require no more water than new seedings. In both cases, the goal is to keep the seed consistently moist to encourage rapid and uniform germination. Heavy irrigation on broadcast seedings may cause seed displacement, so light, frequent irrigations are the best approach. This is less of a problem when seed is planted via a slicer-seeder.
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