

PRACTICAL APPROACHES TO SUCCESSFUL NATIVE PLANTINGS

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There is a growing interest and value in today's landscapes for considering the use of native plantings. A native planting is simply an area that is seeded, planted, or managed to contain vegetation that is composed primarily, or entirely, of plant species that were common to the area prior to human settlement. Native areas can be prairie or grassland type, composed of open, treeless spaces containing warm season grasses and forbs. Wetland areas can, if managed properly, be representative of healthy native landscapes. Native areas can be created in healthy woodlands, if managed to eliminate undesirable species and to encourage native species.

There are several reasons for native areas to be considered valuable components in our communities, which include the large expanses of land devoted to golf. Native areas can be aesthetically pleasing, with colorful wildflowers and tall waving grasses blowing in the breeze. This look can be quite striking used in contrast to the formal, dark green, manicured look of greens and fairways. This visual landscape function can be useful during all four of the seasons. These native areas can be very low maintenance, if established and approached correctly. These areas can exist easily without weekly mowings, fertilizers, chemicals, or irrigation. These natural areas also provide valuable habitat for many kinds of wildlife, including insects, such as butterflies, various birds, and many mammals and reptiles. Habitat for these creatures is vanishing quickly in our developing world, and abundant large spaces that can successfully provide the conditions needed for the existence and the survival of wildlife exists on our golf courses. It represents an important opportunity to utilize our spaces in a way that can provide good habitat and also serve valuable landscape functions on our many Michigan golf courses.

Reasons for Failure of Native Plantings

There are several factors that have hampered the successful use of native landscapes in our society over the last 10 to 15 years. These can be grouped into three main headings; 1) faulty design criteria; 2) incorrect establishment techniques; 3) high establishment costs that lead to no action or to shortcutting of important details in a project; and 4) improper or insufficient maintenance efforts on native areas. Understanding of these factors can be crucial in the planning and establishment of successful native areas.

Critical Design Criteria

A vital part of the planning stage is the accurate inspection and analysis of the proposed site. This is necessary to determine many factors such as soil type and condition, topography, hydrology, solar exposure, existing vegetation on the site (both desired and undesirable species). This information is important in determining if the proposed project is viable, and if so, the proper techniques needed to accomplish the planting. Different site conditions require different preparation and installation approaches. Secondly, the correct species mix to be included in the project can not be done accurately without this site information. Native plant species have

evolved in certain soil, moisture, & sun exposure conditions, and they may not thrive if placed in site conditions that are different.

If existing vegetation is found that is considered invasive or difficult to manage, it is important to deal with this problem before the native seeds or plants are installed. This can be a simple preplant herbicide treatment, or may require a full growing season on more tenacious weeds, such as Canada thistle.

Decisions about the desired requirements for the native planting are also important in the planning stage. Especially on a golf course setting, the plant height, amount of flower color desired, plant density, and budget restrictions will be crucial in selecting an appropriate species mix. This is also the stage of the project that the establishment development schedule needs to be considered. Native plantings take time to develop, 3 to 4 years to reach their mature look. If the proposed area is highly visible, and/or a couple of years of a developing landscape are not tolerable, there are a few plant species that can be included to make the developing area seem more attractive. These include the addition of cover crops, some non-native grasses, and cheaper annual wildflowers. These can be added annually for a few seasons, or indefinitely to add showy color or faster growing plants. Plant plugs can be introduced, at significantly higher cost than seed, to speed up the maturation process.

Appropriate Establishment Techniques

Native plant establishment is not a 'cookie cutter' process. Based on the site conditions and the planned species to be established, several varying options exist. As stated earlier, the existing vegetation needs to be dealt with properly to avoid potential problems later. The procedures are site specific.

The actual site preparation process is not necessarily the same as typically used for establishing turf. Less soil disturbance is better, in most cases. The reason for this is to prevent weed seeds from being brought to the surface with fresh soil. Often, too much site prep is done, which is often unnecessary and can cause more problems

Specialized, native no-till seeders can be used very effectively to install the native seed into existing vegetation, if the vegetation is not too thick or matted. Also specialized shallow surface tilling can sometimes be employed to scratch the surface of the soil without tilling the soil. Then the seed can be dropped and rolled into the surface soil using a native cultipacker type seeder. These are similar to a normal turf type seeder, except they are designed to meter and distribute the light, fluffy (difficult!) native seeds that will not go through a normal seeder. The native seeds are quite expensive (\$500 to \$2000 per acre), and are distributed in rather small quantities (4 to 15 lbs per acre) therefore the accuracy of seed installation is vital.

Seed placement is critical with native seedlings. They need to be placed shallow, firmed into the soil in the top 1/8 to 1/4 inch. Some of the seeds need to be visible on the surface or depth is most likely too deep. To help monitor seed placement, a cover crop, such as oats, is sometimes used, offering a more visual indicator than the hard to see native seeds.

The timing of native seed installation is a critical factor for successful establishment. It is often timed incorrectly. Traditional landscapers who install native plantings using their tried and true optimum turf seeding windows often have poor results. In spring, natives can be seeded from May 1 through June 30, on the late end of good turf seeding dates. In the fall, natives should not be seeded until mid October and can be installed until ground freeze occurs. This represents a dormant type seeding. If natives are seeded in late August and September, they will germinate, but because growth is so slow, but they will not have enough root and shoot development to have good winter survival. Thin stands are often the result.

Native Establishment Costs

Many have not undertaken native plantings due to apparent high establishment costs. There are several factors to consider that can make native seedings similar in cost to a high quality turf seeding, and still have good results.

The cost of the native seed is easily the biggest cost factor to consider. There are a limited number of native seed sources, and they are not always easy to locate. The seed quality, species and quantity recommendations, and prices are extremely variable.

Seed quality is difficult to assess. The purity and germination of these seeds can vary greatly from species to species, region to region, and even year to year. Some seed companies sell seed on a percent live seed, or PLS basis. This should deal with the seed quality issue. However some companies claim they sell on a PLS basis, but make only partial (or no) adjustments for seed quality. Some will make PLS adjustments, even though they don't state that they do so. The actual range in %PLS can vary from 10% to 90%, so this is an important economic factor.

The species mixes that are packaged and sold by the native seed companies would seem to simplify the design process. Often, however, these mixes are fairly generic and may not exactly fit the conditions of one's site. Also, many species may be included that are expensive and may not be needed in a project. Some companies do better than others at giving more mix selections, and customizing mixes for customers.

Some companies sell only regionally local genotype seed, which can be more costly. Some claim that they do, but often do not. Some large seed producers grow their seed on a large scale in the drier more midwestern states and the seed can be much cheaper. The actual value of using locally or regionally produced seed is widely debated by the experts.

The seed quantities that are recommended or put in the prepackaged mixes sold by the native seed companies are quite variable. Native grass seed amounts can range from 2 to 10 pounds per acre, some stating in PLS terms, some not. Native forb, or wildflower, seeds have been recommended at a range of ¼ to 10 pounds per acre, again some stating PLS terms, some not. This gives another huge range that can drastically affect the cost of a project, as well as the potential success of the planting.

All of these factors create an enormous range of seed costs to consider. A good seed mix, containing 6 to 8 PLS pounds/acre of native grass seed, (some regional, some not) 3 to 4 PLS pounds/acre of native forb seed, (partially regionally collected), with an emphasis on the

showier, easy to establish species can be put together for around \$500 / acre. This mix would include 12 to 16 species of natives, a simple mix, but aesthetically pleasing. To arrive at a mix such as this, requires obtaining seed from several sources and custom mixing for the project. It can be a confusing process, but can save 30 to 50% in seed costs.

Maintenance Issues

Many native plantings have not succeeded due to improper maintenance after planting. This can consist of simple rough mowing to keep the plantings at 6 to 8 inches in height the first season, and 8 to 10 inches the second season. This is to discourage weed growth (yes there will be weeds) and to keep sunlight available to the tiny native seedlings. If persistent invasive weeds are developing, some spot spraying with an appropriate herbicide may be called for. This needs to be done by someone familiar with the good and bad species.

There are a few selective herbicides that can be used effectively on a simple native planting. If the species mix is designed to include only species that are tolerant to one of these herbicides, this can add a very handy establishment tool to keep weeds at bay.

After the second or third season one annual burning or mowing is recommended to keep weeds and woody growth from progressing. Burning is preferable but if not possible, mowing can be successful.

Patience!!! Many potentially successful native plantings have been tilled under after the first or second year because the good plants are not very visible. This is to be expected, and a thorough botanical inspection should be conducted before abandonment. These plantings can blossom the 3rd & 4th year when looking questionable after 2 years.

Conclusion

Native plantings should be considered as viable, environmentally healthy additions to any landscape. On the golf course setting, there exist perfect opportunities to utilize large spaces, using native plantings, in ways that are economically feasible, to create beautiful roughs and out of play areas. These can be beautiful, and provide good wildlife habitat.

Establishing these areas can be difficult and confusing. Using the services of a specialist in the design and/or establishment phase can save many dollars, mistakes, and give successful results. With the right planning and implementation, the results can be rewarding and long lasting and something to offer with pride as part of the golf experience.