

Injury Ratings

The March 14 and April 18 treatment dates both gave light to moderate injury to fescue from all treatments except combinations with atrazine at the first rating dates (April 2 and May 16, respectively). Greater injury was expressed at both treatment dates Poast® (20 to 47%) than for Fusilade® (10 to 30%) or Oust® (13 to 40%). Greater injury to fescue resulted from the April 18 treatments as compared with the March 14 treatments. Combinations with Oust® did not seem to adversely affect Poast® or Fusilade® injury. Poast®, in combinations with atrazine, caused severe injury to fescue at both dates of application but injury was more severe for the early application (87% versus 50%).

By the date of the second rating for March 14 treatment, all symptoms had disappeared. Fescue stand reduction was recorded on May 16, which showed a range of 10 to 60 percent stand reduction for certain treatments. Poast® + atrazine, Poast® + Oust® and the highest rate of Poast® caused a noticeable loss of fescue cover. Leaf injury to fescue actually increased between the first and second rating of the April 18 treatment date for most treatments. The exceptions were Poast® + atrazine, Escort® at two rates, and the lowest rate of Poast®. By the third rating date, all injury symptoms had disappeared from the April 18 treatments.

Fescue Seedhead Suppression

Several treatments and combinations gave good-to-excellent fescue seedhead suppression, with greater suppression resulting from the April 18 treatment date than from the March 14 date. Seedhead suppression was almost 100 percent for all treatments and combinations, except Escort®, which rated 90 percent and 83 percent for two rates.

Weed Control

Treatment combinations with Oust®, Escort® and atrazine gave excellent control of broadleaf weeds at the April 18 date of treatment, but relatively less control or suppression at the March 14 date. Vetch and crimson clover suppression or control followed a similar pattern indicating that these species had not germinated at the March 14 treatment date. Oust® gave good-to-excellent control of wild garlic at all rates for the April 18 treatment date, but less control at the March 14 treatment date.

Summary

The most successful treatment in this series when seedhead control, injury, and general appearance of the roadside is considered appears to be a combination of Poast® and atrazine. This treatment should be included in 1986 trials at the different rate than in 1985. Poast® + Oust® combinations also look promising.

Roadside Maintenance Considerations in the Texas Wildflower Program

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The Texas Highway System incorporates slightly more than 1 million acres of right-of-way. To develop and implement the most cost-effective, practical and appropriate methods and concepts for managing roadside vegetation, the Texas State Department of Highways and Public Transportation (SDHPT) has installed a vegetation management system (VMS). VMS will integrate applicable maintenance methods (mechanical and chemical mowing, use of herbicides,); basic objectives of the maintenance activities (safety, protection of investment, user comfort, and aesthetics); sound agricultural principles (range management concepts, soil chemistry, erosion control, wildflower preservation, and propagation,); and the Department policies ("Good Neighbor" policy, control of noxious weeds,).

VMS is a logical management tool to apply the technology gained through long experience and supporting research. Soon after the Texas Highway Department was organized in 1917, it was realized that highways were never built on natural ground - it was either cut or fill. In many cases, the first vegetation to reappear on the disturbed land was wildflowers. They were attractive in appearance and were regarded as beneficial for erosion control, and thus led in 1929 to the recognition of a beautification heritage.

This awareness proved to be the single-most important development in highway beautification in Texas. It led to the maintenance, preservation, and encouragement of natural landscapes along highway rights-of-way when highway construction and automobile transportation were still in their infancy.

In 1932, the SDHPT hired the first landscape architect to make highway personnel, as well as the public, aware of landscape needs. By 1934, plans to shape the future beautification of Texas highways were being put into action. Directives were issued to delay all mowing, except safety mowing, of the rights-of-way until the spring and early summer flower season was over. Today, this policy is still in effect and is an integral part of the new VMS.

Because wildflower seeds were not available commercially in large quantities during the 1930s, they were gathered from prominent wildflower areas after securing written permission from landowners. This was accomplished by one of two methods: (a) the flowering area was cut with a sickle mower after the peak blooming period and before seeds had dropped (the mowed "flower hay" was then transported to the desired location and scattered over the ground) and (b) where permissible, a more successful method was to blade up a thin layer of topsoil containing the wildflower seeds and then transport this soil

and seed to the new location (of course, one would leave enough seed in the original flower area to allow it to recover within a reasonable time).

By 1940, an estimated 500,000 lb of wildflower seed had been spread along the highway by these methods. These methods are still used today, although commercial seed suppliers and contractors are rapidly gaining momentum, making it economically feasible to sow the seed by such standard methods as hydroseeding, broadcasting, or drilling.

The spring wildflower show features mostly annuals, such as bluebonnet (the state flower of Texas), Indian paintbrush, coreopsis, and firewheel in orderly progression. The revised mowing schedule encourages summer and fall blooms from such perennials as blazing star, goldenrod, butterfly weed, and others. Woody plants such as dogwood, redbud, and buckeye are used for accent in rest areas and strategic roadside locations.

As a result of these wildflower propagation methods, wildflowers in Texas have become an economic factor in the state's tourist agency. A third tourist season has been growing for years as people come from all areas of the nation to see the colors unfold each spring. April has become the most event-filled month of the year in Texas. Many towns and cities have organized celebrations, festivals, and special effects with the spring wildflower season as the main attraction. Although data are not available on the number of people or dollars spent, one can certainly say that the crowds grow larger and the events increase in number and size each year.

As the popularity associated with wildflowers in Texas has increased over the past few decades, budget and personnel reductions during the 1970s caused the Department to review its approaches to maintenance. A major concern was the rapidly rising cost of mowing operations, and the design of the new Vegetation Management System, which was done by the landscape architecture staff.

Plans for the VMS were introduced by in-house landscape architects in 1982. The purposes of this program are threefold: (a) to reduce the cost of maintenance and labor; (b) to create a sound native vegetation community on the highway right-of-way that is aesthetically pleasing; and (c) to establish an unannounced right-of-way that blends rather than contrasts with its surroundings.

The diverse climate, soil, and vegetation conditions across Texas required close scrutiny of the new herbicide and mowing policies. Each of the 24 highway districts designated a vegetation manager. Following an education process in January 1983, 24 counties (one county in each district) were selected to implement the VMS on a pilot basis. Studies in each of the 24 counties were conducted to document results, allow the public to critique samples and influence skeptics. The big question that was asked over and over again as analysis proceeded was, "Why are you mowing?". The same question was asked for herbicide applications. The

answers established a criteria for the new VMS that was mapped and followed for 1983.

Urban freeway areas, towns, rural areas, interstate highways, U.S. highways, state highways, and farm or ranch-to-market roads each have different mowing and herbicide requirements. The types of mowing used by the SDHPT include shoulder strip, safety, transition, full-width, and nonmow. Cutting heights are designated for various types of vegetation. Types of herbicide applications employed are pavement edge, guard rail treatment, curb, delineator and signpost treatment, and overspray for undesirable plants. These elements are major features of the new VMS.

One year after implementation of the VMS, mowing costs in the 24 pilot counties were reduced an average of 23.1 percent. The total mowing cost in Texas for 1982 on approximately 1 million acres was over \$32 million, so the savings can be significant. Changes in roadside appearance were also dramatic. Many summer and fall wildflowers appeared that had been suppressed by continuous mowing. Desirable native grasses gained in vigor, flourished, and competed well with undesirable species. The right-of-way did not take on an unkept appearance as some skeptics had warned. Public acceptance of this undertaking has been positive.

The success of such a program requires that native vegetation, including wildflowers, be utilized to the fullest extent possible. We know that by following ecological range management principles of plant succession, a healthy plant community is aesthetically pleasing, self-sustaining, and resists invasion of undesirable species such as Johnson grass. It was due to these invasions of undesirables that mowing and herbicide treatment became imperative.

Ladybird Johnson's support and appreciation for beautification efforts in Texas by highway personnel is demonstrated through her generous establishment of the Ladybird Johnson Award and the Ladybird Johnson Scenic Preservation Award. The Ladybird Johnson Award salutes the maintenance supervisors at the county level who have made the most significant contribution to the aesthetic pleasure and recreational opportunities for the traveling public. The winner of the annual event receives \$1,000 and a plaque, while the runner-up receives \$500 and a scroll.

The Ladybird Johnson Scenic Preservation Award is presented to the Highway District whose employees have contributed most significantly to the natural scenic beauty of Texas highways. The award is based on the preservation of native annual and perennial plant species and natural topography by right-of-way purchase, alignment, design, construction, and maintenance. This award is a memento of appropriate design. These annual awards have brought much appreciated public support and awareness to Texas highway beautification efforts.

Roadside maintenance has enjoyed cooperative research support from the Texas Transportation Institute since the early 1960s. Early studies

designed operational chemical treatments for vegetation invading pavements and seeding practices for erosion control. In recent years, efforts have been directed toward a better understanding of native herbaceous and woody plants for roadside use.

The philosophy of the program in Texas at the present time is one whereby the Department not only plants and increases wildflower areas, but protects and maintains the existing investment of the past years.

Ohio's Contract Maintenance Program for Rest Areas

By Robert E. Tatman

Ohio was a pioneer in the development of roadside rest areas during the 1930s. The interstate highway system was started in the late 1950s and Ohio was again a leader in rest area construction. At that time, Interstate rest areas on a nationwide basis were few and far between. One reason for this was that the Federal Highway Administration (FHWA) did not consider rest stops essential to the highway system.

Ohio decided to proceed with rest area construction on the interstates without federal participation even though it meant using 100 percent state funds. The traveling public soon began to recognize the importance of being able to stop and relax for a short time, eat a picnic lunch, and let the kids make that much-needed restroom break. Cards and letters began to pour in and the FHWA soon came to the conclusion that rest areas were needed from a safety viewpoint and authorized the inclusion of the cost of rest area construction in Interstate highway construction funds.

As is often the case, being a pioneer can prove costly at a later date. Ohio's early efforts at showing the way resulted in rest areas with primitive rest room facilities. Although they were initially well received because they were the only thing going, these comfort stations increasingly became a source of discomfort, inconvenience, embarrassment, and, of course, complaints.

As travel increased, the toilet buildings were soon over-used for their original intent. Other states were providing modern water-flush buildings (thanks to federal help,) and were promoting tourism in a positive manner at rest areas, while Ohio, in comparison, was often referred to in an uncomplimentary manner as "the outhouse state".

In July 1980, the Ohio Legislature mandated that the Ohio Department of Transportation (ODOT) would upgrade the roadside rest areas on the Interstate highway system, along with selected rest areas on the primary road system. The new facilities were to have water-flush buildings, a sewage treatment plant (where needed), and picnic areas, all of which require more care and maintenance than the rest areas being replaced. After several delays, which are not germane to this discussion, an accelerated rest area modernization program is now underway.

Forty-three locations along the Ohio Interstate highway system will be the first to be completed. In addition, some other rest areas that are heavily used but not on the Interstate highway system, are being upgraded along with the interstate projects. Thirty-one rest areas have been placed under contract with 28 now complete and open for use. It is hoped that the majority of the Interstate highway rest areas can be under construction by the end of 1987.

Ohio law provided funding for this construction program with proceeds from the sale of vanity automobile license plates and federal highway dollars. The ratio of funding is 90 percent federal and 10 percent state for each project. Maintenance, cleaning, and upkeep of modern rest room facilities require more effort than did the "privy" facilities. It was soon found that the staff resources needed to provide acceptable levels of maintenance at the new facilities were inadequate. The combination of modern buildings, picnic grounds, and sewage treatment plants with increased use by motorists required a department-wide raising of standards and increasing of hours of maintenance. Employment ceilings mandated by the Ohio Legislature, however, did not provide the flexibility to hire the new state employees needed for rest-area caretaking. The search was begun for alternate methods of providing rest area maintenance and the initial program of contract maintenance was born.

In August 1981, the ODOT contracted with an adult sheltered workshop for the mentally handicapped to supplement state forces in maintaining the new twin rest areas just south of Toledo on Interstate 75. The ODOT cooperated with Columbus-based Ohio Industries for the Handicapped, Inc. (OIH) in organizing and expanding the program on a statewide basis.

The OIH is the centrally located, equal-opportunity, not-for-profit, marketing organization for Ohio's more than 185 sheltered workshops; these workshops are located in all 88 counties. The organization was formed by legislation effective in August 1977 to market products and services to state agencies, political subdivisions, and other instrumentalities of the state. These products and services are manufactured and performed by over 22,000 handicapped citizens.

The legislation also created the State Use Committee, which would review and approve each of these products or service before the state makes a purchase. This committee gives approval once it is satisfied that the item in question is fairly priced while meeting or surpassing the state's quality requirements. Prices are set to recover the cost of raw materials, labor, capital, overhead, and delivery costs, but without profit.

Because the OIH has the responsibility of selecting a local workshop to fulfill each contract, they have developed a thorough training program. Those workshops that are awarded ODOT service contracts are guided through the mechanics of costing the contract, and assisted with start-up responsibilities.