Ornamental Landscape Weed Control Prescription
Hawksprairie Landfill (WARC)

The ornamental landscape planting at the facility provides a combination of seasonal flowering and fall and winter color displays. It was designed using low maintenance plants in a formal landscape design. Newly planted landscapes have a great potential for weed invasion due to the open ground between the landscape plants. This potential will continue to exist until the landscape canopy shades out the open areas and discourages weeds from growing. During the early years of a landscape an aggressive weed control program will prevent long term weed infestations.

The Hawksprairie landscape has experienced an extensive weed infestation since installation. This infestation has gone to seed and added to the weed seeds that have also migrated from the surrounding landscape. If weeds are not kept under control these weeds can out compete the landscape plants for root space, water, nutrients, and sunlight resulting in displacing the desirable plants. This landscape requires an aggressive weed management program. In 1993 a weed survey was done and a list of the species can be found in Appendix A.

Prescription

It is the intent of the Solid Waste Division to control weeds using integrated pest management (IPM) techniques. IPM uses regular monitoring to decide if or when to do treatments. The approach emphasizes physical, mechanical, cultural, and biological tactics to keep weed problems low enough to prevent intolerable damage and annoyance.

In deciding effective control strategies for weeds, it is helpful to classify them in terms of their life cycle, growth habit, and reproductive strategy. The results of the 1993 weed survey are found in Appendix A. The species list includes whether the plants are annuals, biennials, or perennials.

Summer annuals germinate in the spring and die in the fall while winter annuals germinate in the fall and die in the summer. Biennials live for two years. They develop to partial maturity (rosette stage) during the first year and then flower, seed, and die in the second year. Because individual annual and biennial plants only live for a short time, they seed prolifically to ensure long-term survival of the species. As a result, the best method of control for annual and biennial weeds is to remove them before they have a chance to go to seed.

Herbaceous perennial plants can live for many years and usually die back to the roots and overwinter in a dormant state followed by new top growth the following spring. They reproduce by seed and vegetatively through either underground rhizomes or stolons above ground. Many invasive and persistent perennial weeds are rhizomatous and are difficult to control without herbicides. This primarily is a result of their ability to produce new plants from any rhizome fragments left in the soil after doing manual or mechanical control efforts. Thus, to effectively carry out non-chemical controls for these types of plants it is essential to control them as early as possible after they are found on the site. Removal of the entire root system, and timely monitoring and follow-through is essential. For extensive populations of rhizomatous weeds, systemic herbicides may be necessary to gain initial control of the problem. Once under control, frequent timely non-chemical methods are usually sufficient as follow-up treatments.
Design

An aggressive weeding program will need to continue into the future due to the formal landscape design. However, an introduction of new plants that are aggressive growers and provide an additional layer of vegetation would help reduce weed infestations in the future. This layering effect would be aesthetically pleasing and will closely mimic the environmental conditions found in a natural landscape. A more detailed description of the introduction of new plants is elsewhere in this document.

Monitoring

There will be frequent inspections of the entire landscape for weeds during the growing season. Weekly observations would be appropriate during the establishment phase of the landscape and biweekly or monthly after the landscape has matured. Records of the inspection shall be kept and written reports submitted to the Landfill Landscape Manager. The record shall include a list of weed species present and the approximate level of infestation. Use records and reports to evaluate the weed control program and improve future strategies.

Threshold

The degree of weed control necessary depends on the maintenance priority level and standards of the area in which the weeds are present. Maintenance priority levels and standards are decided by using both the health and aesthetics of the landscape. Tolerance levels are measures of maintenance standards for weed control. A low tolerance level will mean that when viewed from nearby a casual observation of the landscape will show no or perhaps a few weeds growing in the landscape. A moderate tolerance will mean that when viewed from the distance of most observers a casual observation will show no or a few weeds. The distance the casual observer is from the landscape decides the tolerance levels of weed infestations. In other words, the weed control efforts should be greater when the observer is close to the landscape and less when the observer is further away.

The entrance to the landfill on Hogum Bay Road needs to have a low tolerance to weed infestation. This area is closer to the public and will need a higher standard of maintenance.

Landscape areas on the north and south sides will have a medium tolerance to weed infestation or lower standard because of the further distance from the public. The north and south slopes are the areas that are next to Interstate 5 on the south and other property owners to the north.

Treatment Strategy

Handpulling or Mechanical control

The primary goal of the landscape maintenance program is to encourage ornamental plants to quickly fill in and stabilize slopes. Using proper landscape cultural activities such as weeding, fertilizing, pruning, irrigation, and control of disease and insect pests will help the plants become quickly established. Encouragement through good cultural activities will help in the establishment, health, and full coverage of landscape plants and will reduce the presence of weeds, diseases, and insect pests.
Handpulling or mechanical will be the primary method of weed control. Weeding activities should begin in March through May to control those weeds that set seed in the fall of the preceding year and has germinated into small plants. By beginning in March the plants are still small and will prevent the plants from maturing into larger plants and producing seeds.

Weeding activities between August and October will help control weeds that bloom in the spring and seed early summer for fall germination. Weeding effectively early in the year will reduce the seed source for this type of plant, however, there will be seeds coming from surrounding properties.

If for some reason weeding activities cannot take place a stopgap measure would be to at least cut the flowers' head off the weeds to prevent seed formation.

**Chemical control**

Using Roundup may be appropriate if hand control proves to be an ineffective control method. Roundup would be effective in getting initial control of currently established perennial weeds. After achieving initial control manually removing young seedlings will be appropriate. Permission from the Vegetation Management Coordinator would be needed to use Roundup as a weed control activity. The Coordinator will decide whether the manual weed control program is being effective and maintaining the goal of the landscape plan.

If permission to use Roundup is given only spot application will be used. Spot application means the herbicide is applied only to the plants and not on the surrounding ornamentals, bark mulch, or soil.

The application will follow the pesticide application procedures found in this document. The timing will be similar to those found in manual application. Timing includes before seed formation and when control is the most effective. This includes when the weeds are young and growing vigorously. Some perennial plants may need special timing considerations especially when the herbicide is translocated into the roots for more effective long-term control. The Vegetation Management Coordinator can provide assistance.

**Evaluation**

Records will be kept that will help evaluate the weed control program. These records will provide a historical account of the weed control strategies and help "fine tune" the weed control program and select future weed control options.