

Railroad Vegetation Management

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Uncontrolled vegetation on railroad rights-of-way makes successful maintenance and operation a difficult, if not impossible, task. The major impact of uncontrolled vegetation is economic. Unmanaged vegetation accelerates the deterioration of every component of the railroad structure that is essential to the successful operation of the system

Aside from the economic reasons, a few general reasons to control weeds on railroads are:

- Remove health or safety hazards
- Improve or maintain working conditions
- Conform to local, state and federal regulations
- Improve the appearance of the railroad
- Reduce fire hazards
- Facilitate proper inspections

There are three basic methods of weed control used on railroads: controlled burning, mechanical and chemical. Controlled burning is rarely used today. The fuel and labor costs are high, the air pollution caused is no longer acceptable to the general public and control is temporary. Weeds may have to be burned several times a year.

Mechanical control includes mowing of weeds and cutting of brush on railroad property. It is more costly than chemical but may be used when the use of herbicides is restricted due to laws or proximity of crops. Most mechanical control is directed towards brush cutting. Brush cutting is costly and control is temporary but it is appropriate where removal of all standing vegetation is required. Once brush is cut, it will be more economical to control regrowth by chemical methods.

Chemical control is by far the predominate method of controlling vegetation on railroad rights-of-way. It is the most cost effective method in a railroad environment. In addition, chemicals are easy to apply, the degree of control can be regulated and productivity is much higher than with mechanical methods.

Most of the major railroads use private contractors to perform the vegetation control programs on their systems. The contracts are either Guaranteed Performance or Specified. In Guaranteed Performance programs, the pattern width and areas to be treated are specified and the contractor is free to use treatments of his choice. The railroad pays a lump sum amount on the condition that the property will be maintained to the satisfaction of the railroad. Any additional work required to achieve the expected level of control is at no additional cost to the railroad. In Specified programs, the railroad specifies the chemical treatments and acreage to be treated. The contractor provides a price per acre and the railroad must pay extra for any additional work necessary.

Railroad vegetation control programs contain the following applications: yards and off-track, bridges, line-of-road, road crossings and brush.

Yards and off-track areas must be kept weed free for the safety of workers, to permit inspections and to allow workers to perform maintenance. Railroad cars must be removed from rail yards to apply an herbicide treatment. This is costly and time-consuming, therefore one application, providing season-long bareground control is desired. These are pre-emerge treatments applied out-of-face with high rates of residual herbicides. Some common treatments (rates per acre) are:

- 8-12 pounds diuron
- 6-8 pounds Krovar
- 4 ounces Oust plus 5-6 pounds diuron
- 4 ounces Oust plus 2 pounds Spike

Bridges are treated to permit proper inspections of the structure and in the case of timber bridges to prevent fires. For that reason alone, bareground, long-term control is essential. Like, yards, these are pre-emerge treatments applied out-of-face with high rates of residual herbicides. Care must be used under bridges so that herbicides are not applied to water.

Line-of-road applications are the largest portion of a railroad program. They are needed to provide safety, promote drainage, increase visibility and permit inspections of track and trains. The treatment pattern on mainline tracks can be from 16 to 24 feet wide. These are usually post-emerge treatments providing season long control. The shoulder sections of the roadbed (outside 2-4 feet of the pattern) are treated out-of-face and the ballast area between the shoulders is usually spot sprayed where needed. The standard treatment is 2 quarts Roundup PRO plus 3-4 ounces Oust plus 1 pint 2,4-d per acre. In sensitive areas the 2,4-d can be omitted. Another option is to replace the Oust in the previous tank mix with 6-8 pounds diuron.

Public road crossings must be treated to improve visibility and conform to legal requirements. These are usually post-emerge applications designed to suppress but not eliminate vegetation. A few of the common treatments are the following tank mixes:

- 3 pints Roundup PRO plus 2-3 ounces Oust
- 3 pints Roundup PRO plus 1-2 pints 2,4-d
- 6 pounds diuron plus 2 quarts 2,4-d

Brush control is the final part of a vegetation control program. It is done to prevent fouling of communication lines and to maintain visibility at crossings, signals and around curves. The most effective brush treatments are late post-emerge. Excellent brush control can be obtained with:

- 6-8 quarts Roundup PRO
- 5-6 quarts Round PRO plus 8-16 ounces Arsenal 2WS
- 2 quarts Tordon plus 4 quarts Garlon 3A

The equipment used for railroad applications can range from a truck with a tank, pump and hose to a multi-system spray train. Most of the equipment used on the rails is custom built by the major contractors. Most of the equipment has the ability to apply multiple treatments to different parts of the railroad at the same time. This reduces the time required to complete the job. Spray trains, once the workhorse of mainline applications, have almost entirely been replaced by trucks, which don't require as much manpower.

Spray trains consist of a spray car, several large tank cars and a boxcar to carry the concentrated herbicides. They have a high capacity and are very productive on long runs. They are propelled by a railroad locomotive and the speed control is not very precise. They require a railroad operating crew and more spray technicians than a truck.

Hy-rail trucks have the capability to be driven on-rail or off and have capacities ranging from 500 to 5,000 gallons. This allows them to be more flexible logistically than trains. They are self-propelled and a railroad crew is not required. One spray technician can perform most hy-rail applications. One drawback to trucks is the reduced capacity increases downtime spent filling and mixing.

Vegetation control has become complex. Since the days when section gangs grubbed weeds, and simple one-system cars applied diesel fuel, the field has become mechanized and herbicides regulated. The term "management" has been substituted for "control". Such a change implies a concept greater than prevention or removal. It will be increasingly important for all those involved in railroad vegetation management to gain greater proficiency.