



Spray trains are efficient on mainlines in wide-open territory where it is possible to spray over 100 miles per day.

The ABC's of Railroad Weed Control

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CLASS I American Railroads spend over \$20 million annually on chemical vegetation control on about 200,000 miles of track. Practically all railroad operations are influenced to some degree by weed control.

Controlling vegetation provides proper drainage of the ballast section, a clear walkway for railroad workmen, improved sight distance for inspection of trains as well as at grade crossings and reduces the hazard of fire around bridges and other structures.

The loss of one structure can cost more than the cost of treating all structures on an entire railroad system for one year.

Weed control prevents slippage and makes it possible to inspect and work on the track section. Brush control prevents the fouling of signal and communication lines. Weed control is also necessary to conform to state and local laws requiring general weed control such as city laws not allowing weed growth over 24 inches high. Almost all states have noxious laws which require property owners, including railroads, to control certain weed species that are considered harmful to agriculture. New federal track standards also set certain standards for weed and brush control.

Herbicides are used in certain instances to establish fireguards to protect adjoining property from railroad-caused fires. Railroads are not only responsible for any damage caused to adjoining property, but in many sections of the country, railroad companies are required to pay fire suppression costs.

Annual spray programs provide for application of residual herbicides and in many instances contact and systemic herbicides in a set spray pattern over the ballast section on main lines and branch lines for bare ground weed control. Railroad yards and industrial trackage are also sprayed and granular herbicides containing residual herbicides are used on bridges and other structures mainly for fire protection.

Several major railroads employ vegetation control engineers who have the responsibilities to plan and carry out an annual vegetation control program. This program designates the chemical to be used, the

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rate in pounds of product per acre and the time of application.

Several major agricultural chemical manufacturers market industrial herbicides. Most of these manufacturers have railroad herbicide specialists who assist railroad engineering personnel and contract applicators in planning and conducting weed control programs. Herbicide manufacturers also conduct extensive research on industrial vegetation control.

Railroad personnel, manufacturer's representatives and contract applicators cooperate in making annual inspections to check the results of the various programs. These inspections are essential because the vegetation changes constantly to species tolerant to the chemicals being used. Spray programs have to be adjusted every year so chemicals that will control resistant species are used.

There are four national contract applicators and a number of regional contract applicators. These companies have specialized railroad spray equipment including hy-rail trucks and railroad spray cars. The spray cars are used with several tank cars and are pushed by a regular locomotive.

Hy-rail trucks are becoming more popular and are especially effective for spraying yards and branch lines. They use lower volumes than spray cars and are less expensive to operate. Railroad spray cars are still efficient on mainlines and in wide open territory where it is possible to spray up and sometimes over 100 miles per day.

Spray cars are also used for spraying brush, however, hy-trucks are starting to be used for brush control as well as helicopters. High volume sprays are used for brush control when using spray cars while hy-rail trucks and helicopters use low volume sprays.

Contract applicators also distribute herbicides for railroads doing their own spraying and formulate herbicides for the railroads and for contract application.

Residual or soil active chemicals require precipitation to activate them; however, extensive precipitation will leach residual chemicals out of the root zone and reduce their effectiveness. Consequently, time and amount of rainfall are important considerations when determining the time of application. In the semi-arid West most of the rainfall is in the fall and winter months and application is made in the arid northern states such as eastern Oregon, southern Idaho and southern Utah in the fall, while warmer semi-arid areas such as southern California are usually sprayed during the winter months.

Higher rainfall areas including most of the central and eastern U. S. are sprayed in the early spring with a combination of residual, contact and systemic herbicides. This allows for later application than with residual chemicals alone and reduces losses due to leaching.

Distributing application over several months also helps utilize personnel and equipment.

Present programs call for relatively low rates of contact herbicides; consequently, it is important to spray early in the spring before the vegetation gets too large.

Originally all railroad chemical vegetation control was with contact herbicides; however, since the introduction of residual herbicides, the trend has been to less use of contact herbicides and more residual herbicides which give longer lasting results.

Some of the chemicals and rates per acre presently being used include: 6 to 12 pounds Atrazine, 6 to 12 pounds Diuron, 2 to 4 pounds Diuron in combination with 2 to 4 pounds Bromacil and 6 to 12 pounds Prometon. A new chemical, trade named Spike, with recommended rates from 1.5 to 4 pounds is also being introduced into the railroad market this year.

These residual chemicals are being used in combination with 2 to 3 pounds Amitrol, 75 to 150 pounds chlorate borate, or 6 pounds MSMA. Also, 2 to 4 pounds 2,4-D is used in the spray mixture where broadleaf weeds are a problem.

Chemicals used for brush control include: 2,4-D — 2,4,5-T; 2,4-D — Picloram and 2,4-D — Dicamba.

Grasses are generally more difficult to control than broadleaf weeds. Some difficult to control grasses prevalent on railroad right-of-ways are inland saltgrass, big bluestem, prairie cordgrass, johnsongrass and bermudagrass. Annual grasslike weeds are usually controlled with regular spray programs; however, foxtail, and crabgrass often germinate late in the season after the residual herbicide has been leached down. Downey brome grass is easily controlled but is prevalent outside the regular pattern and is the cause of many railroad fires. Horsetail is one of the most difficult to control species prevalent on railroads.

Swamp smartweed, hemp dogbane and common milkweed are some of the most difficult to control broadleaf species. Various vines are a serious problem on railroads in the southern United States.

Although annual broadleaf weeds are relatively easy to control, when they are not controlled they are very troublesome because of their size and rapid growth. Kochia is the most troublesome broadleaf species. Russian thistle is also prevalent on railroad right-of-ways in the western U. S.

Brush or woody plants are a serious problem in the eastern and southern U. S. It is not only necessary to keep brush out of pole lines, but also at least 20 feet back from the outside rail. Brush is also a problem in the Pacific Northwest; here blackberry brambles are the most serious problem. □



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