

David Conroy of Contracked-Lands explains...

# Railway Weed Spraying

Railway weed spraying is regarded as a 'Cinderella' activity - most engineers have a poor knowledge of it, and in terms of expenditure it forms a small part - perhaps less than 0.5% - of total infrastructure maintenance. Yet it assumes disproportional importance because of the travelling public's perception and comments on such matters. Most people, whilst ignorant of engineering, probably do have a garden - thereby becoming instant experts on anything arboricultural and horticultural. The public are vocal in wishing to retain trees, but refuse to accept the attendant problems of leaves on the line!

Responsibility for vegetation control invariably falls upon people who may not be experts themselves. Furthermore, those with such responsibility have other environment issues to deal with, so occasionally continuity can sometimes be lost. Herewith, we offer a brief analysis of the identified problems and possible solutions, which may help clarify the situation for the engineers given responsibility for clearing weeds by the railway.

**Objective:**

Providing a weed-free environment in and around the active area of rail operations, to ensure the continued operation and safe running of trains.

**Target:**

- i) Keep track and cess completely weed free
- ii) Keep completely weed-free active



- iii) To control weeds off-track for sight-lines and signal visibility
- iv) To control weeds in public areas for amenity and visual reasons, and to prevent trips and falls - and legal claims.

**Activity:**

- a) Total weed control (preventative and curative) - at 5 metre width.

Apply total residual herbicides to track and cess, which will kill those weeds present, and prevent future germination or colonisation of ballast, with one application per season. This is the preferred choice of herbicide for reasons of economy and also scheduling, occupancy and paths.

If the plants are already growing strongly the preventative element will struggle to be effective, with only the curative element able to perform. A secondary application may be required in neglected sites to bring them to an acceptable condition, which thereafter requires a maintenance regime.

**Total weed control (curative).**

Apply total temporary herbicides to track and cess which will deal with weeds present but have no further preventative action. The target must be visibly present and not dormant at the time of application, as the herbicide enters via the green leaf.

Generally such 'ephemeral' applications ➤

**Standard 5 metre swath for track and cess.**



**Fixed off-track spraying, sideways up to 5 metres.**

# Adventures with Weeds

- **BRACKEN:** This native plant spreads by rhizomes, and shades out other desirable plants and grasses. When mature it is a fire risk, and if burnt the potash accumulated in the plants is released to encourage vigorous re-colonisation. Steam trains have been known to ignite dead bracken!
- **BRAMBLE:** Many varieties form dense beds on embankments and cuttings, from whence fronds emerge onto cess to entangle or trip platelayers. Badgers often occupy these banks and, unseen and unhindered, can make the slopes unstable. As a protected species interference with the badger is unlawful, but killing their cover isn't. Bramble can obscure rail signalling and will scratch restored rolling stock. Volunteers do not generally offer their services for bramble clearance a second time!
- **BUDDLIA:** Another native plant which has violet flowers attractive to butterflies. As a pioneer species it will be amongst the first to colonise newly cleared areas and redundant yards. It also has a habit of growing in brick masonry (often bridges, viaducts and other inaccessible areas) to their detriment. It often spoils sight lines and signal visibility.
- **COPPICE REGROWTH:** This forms from the stumps of cut down trees and achieves vigorous growth in one season. If left untreated it will rapidly regrow, with the trees returning more 'hairy' and less shapely.
- **GIANT HOG WEED:** Introduced by Victorians from the Caucasus. It is highly invasive and productive, blacking out native growth. The sap can lead to blistering in conditions of sunlight.
- **HIMALAYAN BALSAM:** Alien weed which shares family of Bizzie Lizzie but is somewhat larger; at two or three metres high being the UK's largest annual. Forms dense beds and obliterates competition.
- **JAPANESE KNOT WEED:** Yet another successful introduction by the 'department of jolly good ideas' two centuries ago. The most invasive plant in UK, with roots up to two metres deep.
- **RAGWORT:** Previously important as a depredator of livestock (sheep, cattle etc.) but not so much now, if road verges are any indicator.

are dictated by ecological considerations, e.g. the Great Central railway bisects a reservoir, and the North Yorkshire Moors railway traverses a 'Site of Special Scientific Interest' which precludes the use of residual herbicides. The number of applications required is generally two - May and September, and maybe three times, because the products used invariably enter the target via the leaf. Rainfall at or soon after the applications are made can reduce effectiveness.

b) Total weed control excluding track and cess (preventative and curative). Application of total residual herbicides to fixed installations - e.g. bridges and viaducts, footbridges, turntables, storage areas of permanent way components and other yard areas to prevent germination or colonisation of ballast.

- c) Selective weed control off-track (curative).  
Applying target-specific herbicides to control weeds, e.g. bramble, which trips platelayers and inspectors, or buddlia and scrub which obscures signals and reduces visibility on curves - generally related to cuttings and embankments.
- d) Total weed control in public areas. Apply total selective herbicides in areas open to public access, to improve appearance by presenting a cared-for and well tended 'shop front' (weeds in paving and shrub beds) that prevent slips or falls (moss or algae) or abrasion (bramble).

## Methodology:

- a) Use on-track vehicle-sprayer to apply herbicide with a swath width of five metres by traversing the track length. Use residual herbicides approved for use on stone or ballast.
- b) As in a) above using total temporary herbicides applied from on-track vehicle-sprayer.
- c) Apply selective weed control using a hand-held lance at the end of a 100m powerhose (or knapsack as appropriate) to kill bramble, buddlia, or regenerated scrub from tree-felling, but leave grasses unaffected. The grass will intercept the effect of rainfall and retain stability on cuttings and embankments. These are treated from an on-track vehicle utilising special nozzles which can project herbicide up to five metres from the track - either from fixed, sideways-facing positions (see picture) or where problem plants are intermittent or variable in density by operator selection, using a hand-held lance (pictured above).
- d) Apply chosen weed control by knapsack or other specific method. Avoid use of high-volume 'broadcast' methods when working in areas where the public cannot be excluded, i.e. station car parks, approaches and frontages.

This analysis is predicated from the expectation of utilising herbicides to achieve the identified objectives but physical/mechanical methods may be more cost-effective or expedient in particular circumstances, e.g. tree felling. Additionally, species selection, forethought and long-term vegetation plans need also to be drawn up and implemented.

Hopefully the foregoing is of some help in targeting the identified problems in this so-called 'Cinderella' activity. ■



Operator selection using hand-held lance to treat off-track.