DB Guidelines on Integrated Plant Protection Management
2nd UIC International Workshop on Vegetation Management

Deutsche Bahn AG | Michael Below | CUM (N) | Paris | May 25, 2016
The Three Guidelines on Integrated Plant Protection Management of Deutsche Bahn AG are fixed within the DB Directive 190.0101A50 since August 28, 2014

1 Introduction and Aim

2 Legal Frame

3 Common Principle of Weed Control at Deutsche Bahn AG in Germany

4 Guideline Weed Control for unsealed Areas
   4.1 Description and Characterisation
   4.2 Need of Weed Control Measures
   4.3 Operation of Weed Control Measures in Terms of the EU-Guideline 2009/128/EG Appendix III

5 Guideline Weed Control for unsealed Areas
   5.1 ...
   ...

6 Guideline Weed Control for Railway Tracks
   6.1 ...
   ...

Integrierter Pflanzenschutz im DB-Konzern in Deutschland
Leitlinien für eine nachhaltige Vegetationspflege im Rahmen der Instandhaltung von Anlagen und Flächen
Introduction

Deutsche Bahn is one of the biggest land owners in Germany (approx. 1.100 km²):
- Infrastructure Facilities like Railway Tracks, Railway Stations, Power Supply Facilities;
- Areas, no longer used for Railway Transportation.

Plant Cover may
- have positive Effects e. g. Stabilisation of Embankments and Dams;
- cause risks e. g. for a save Railway Traffic/ opposite the safety of Third Parties;

in general only Herbicide free Measures are used for Weed Control Reasons – exceptions are possible.

Aims of DB

- establish a high transparency of Weed Control in Terms of the EU-Guideline 2009/128/EG beside an Agreement binding on the Contractors;
- contribute to the Aims of the National Action Plan for a sustainable Use of Plant Protection Products in Germany;
- underline its Role as a Pioneer in environmental Issues.
Weed Control includes several Steps and is based on two German Laws: Railway Act and Civil Code

The Workflow of Weed Control:

1. Inspection
   - Inspection of Areas and Facilities in terms of Vegetation by DB Staff or Contractors
2. Evaluation
   - Evaluation in three Steps:
     1. Need of Weed Control Measures
     2. Determine the suitable Measure
     3. Consideration of recent Measures
3. Operative Planning (incl. Permissions) and Processing
4. Evaluation of Treatment/ Acceptance of Service by DB Staff
5. Documentation of processed Measures for future Planning and Communication Activities

3. Planning/ Processing of Measures
4. Evaluation / Acceptance
5. Documentation
The Areas of DB in Germany are divided into three Sectors

| unsealed Areas | ■ all Areas without surface sealing outside the Railway Tracks like dams, embankments, incisions, rail triangles, forest areas, green lands, urban or other fallow lands, … |
| sealed Areas   | ■ All Areas with sealed surfaces outside the Railway Tracks like water bounded surfaces, flagging, bitumen or concrete slab Example: duty stroke, walk paths, Parking places, storage areas, Platforms in Stations, emergency place, … |
| Railway Tracks | ■ Main Tracks of open lines (single or double track line); ■ Main Tracks within platforms; ■ Side Tracks within shunting yards or trans-shipment centre |
The Need of Processing Weed Control Measures is a Result out of the Demands from the different Areas

<table>
<thead>
<tr>
<th>unsealed Areas</th>
<th>sealed Areas</th>
<th>Railway Tracks</th>
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<tbody>
<tr>
<td><img src="image1" alt="unsealed Areas" /></td>
<td><img src="image2" alt="sealed Areas" /></td>
<td><img src="image3" alt="Railway Tracks" /></td>
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<tr>
<td>- Underrun minimum distances of operational facilities, traffic areas, electrical installations, …</td>
<td>- operational safety e. g. support structure</td>
<td>- sighting distance</td>
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<tr>
<td>- occupational health and safety</td>
<td>- safety to traffic e. g. within public walking paths and places</td>
<td>- occupational health and safety</td>
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<tr>
<td>- Occurrence of Pest</td>
<td>- operator protection and occupational health and safety</td>
<td>- Track quality</td>
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<td>- Construction protection e. g. Tunnel portal</td>
<td>- Frost instability</td>
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<td>- Life span of railway tracks</td>
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The Weed Control measures depend on the characteristic of the area treated

| unsealed Areas | Mechanical measures like Mowing, Mulching, (Motor)saws, …  
| Thermal Measures like Infrared, …  
| in single cases chemical Measures like Herbicides against Giant Hogweed, Ambrosia e. g.  
| Experimental stage: Cover with different materials |

| sealed Areas | Mechanical Measures like Mowing, Chipping, …  
| Thermal Measures like Infrared, Flaming , …  
| in single cases constructive Measures like low percentage of interstices in flagging areas, sealing the surfaces, …  
| … |

| Railway Tracks | Chemical Measures with Spraying Train, Two-Way-Vehicle or Backpack Spraying |
Outlook

- Revise and update the Guidelines (in Process)
- Prove a Publication of the DB Guidelines within the National Action Plan of a sustainable Use of Plant Protection Products (NAP)
- Continuously observation of the market concerning herbicide free measures
- Optimise Herbicide application by using GPS-/ Weed Detection Systems, because Herbicide free Measures will not be available for all Areas needed in the near future

Task: further Reduction of Herbicide Amounts
Questions? At all Times - contact:

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Many Thanks for Your Attention