

Technical Note

Special Considerations in Herbicide Use

Introduction

Vegetation management is critical to establishing desirable plant species and to achieving reclamation objectives. For purposes of simplicity and clarity four Technical Notes on vegetation management have been developed. They are:

1. Principles of Vegetation Management
2. Vegetation Management Treatment Options
3. Operational Vegetation Management provides
4. **Special Considerations in Herbicide Use** provides specific guidance around herbicide use for vegetation management - particularly with respect to regulatory requirements, safety, environmental protection and prescription.

Herbicides are among the most effective and least costly vegetation management tools available for reclamation purposes. They are also most subject to misplacement in the environment during and after application. Herbicides are also subject to greater concern on the part of public stakeholders and as a result are more highly regulated than other vegetation management treatments. The following guidance is offered to support safer, more effective and more responsible use of herbicides for vegetation management.

Regulatory Requirements

Herbicide use in Alberta is regulated by the Alberta Environmental Protection and Enhancement Act, the Pesticide Sales, Handling and Dispensing Regulations, the Pesticide Ministerial Regulation and the

Environmental Code of Practice for Pesticide Applications[1] (the Code of Practice). The Code of Practice provides plain English guidance around sales, storage, handling and use of pesticides including herbicides. ***It is strongly recommended that vegetation managers familiarize themselves with the Code of Practice before undertaking herbicide operations for reclamation purposes.***

Key components of the Code of Practice are:

1. Certification requirements for pesticide applicators - when applying pesticides on public lands applicators must be certified as trained and competent.
2. Protection of open bodies of water - open bodies of water are defined by the Code of Practice which also prescribes No-Deposit Zones specific to individual pesticide (and methods of application). It is important to understand the No-Deposit Zone is not a protective buffer, it is an extension of the open body of water and as such pesticide deposition in the No-Deposit Zone is a regulatory violation.
3. Insurance and emergency response requirements.
4. Special requirements for aerial application of herbicides including valid calibration.

Use of Herbicides

Safe, responsible use of herbicides is challenging and requires a specialized skill set details of which are beyond the scope of this note. The Centre for Integrated Pest Management provides easily followed generic guidance on responsible use of pesticides on the Pesticide Environmental Stewardship website[2]. Vegetation managers should refer to this website and the Code of Practice for guidance.

Herbicide use must include comprehensive risk identification, analysis and mitigation practices to ensure herbicide effects are confined to species and areas targeted for treatment. Risk mitigation includes technical (application equipment), meteorological (weather limits on application) and human (project supervision) components. In most cases application contractors follow a corporate risk mitigation strategy - vegetation managers are encouraged to familiarize themselves with the contractors' process and seek to understand how the process will ensure compliance with the Code of Practice.

Contentiousness of Herbicide Use

Use of pesticides (including herbicides) is generally quite contentious - herbicide use on public lands frequently causes concern on the part of public stakeholders. This contentiousness arises from several sources, among them concerns that pesticides accumulate in the environment and bio-magnify in food chains. (This was the case with a type of insecticide used in the immediate post-World War II period.) Another cause of concern is the contention that chemical defoliants (herbicides) used in the Vietnam War were causal in the appearance of cancers, other health issues and birth defects in children among

[1] http://www.qp.alberta.ca/documents/codes/PESTICIDE.PDF
[2] http://pesticidestewardship.org/Pages/default.aspx

veterans of Vietnam. In both cases the concerns resulted in substantial changes in how herbicides are tested and approved for use. In fact, herbicides intended for use on public lands are subject to more exhaustive testing and scrutiny than pharmaceuticals intended for human use. Unfortunately such highly technical testing is difficult to convey with transparency and sensitivity to the often emotionally charged opponent(s) of herbicide use. Therefore, it is recommended that vegetation managers develop proactive disclosure and information programs prior to being confronted by a concerned and possibly angry public.

Public information programs should emphasize the value and importance of reclaiming disturbed lands as a means of helping to assure forest health and diversity. Likewise emphasis should be on ecological and public values not on business outcomes. In communicating this information it is important to support the importance of herbicides in achieving reclamation objectives - it is best in these circumstances to acknowledge but not emphasize the cost effectiveness of herbicides. It is also important to recognize that much of the public concern encountered arises from a sense of bearing a significant risk (potential exposure to an herbicide) while reaping none of the benefit on the part of public objectors. Understanding the origin of the concern it becomes apparent that the best way to alleviate the concern is to reduce the perception of risk. This can be done by emphasizing the targeted nature of treatment, the rigor of risk identification and mitigation, and - most importantly - the importance of an integrated approach of which herbicide use is but a single component.