

Weed Control and Genetic Purity: a Perspective from the Peace River region of Canada

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Controlling Wild
Oats and Volunteer
Cereals is Very
Critical During
Establishment

Note: Strip missed
when spraying
herbicide

Cleavers (*Galium aparine*) in creeping red fescue (*Festuca rubra*)



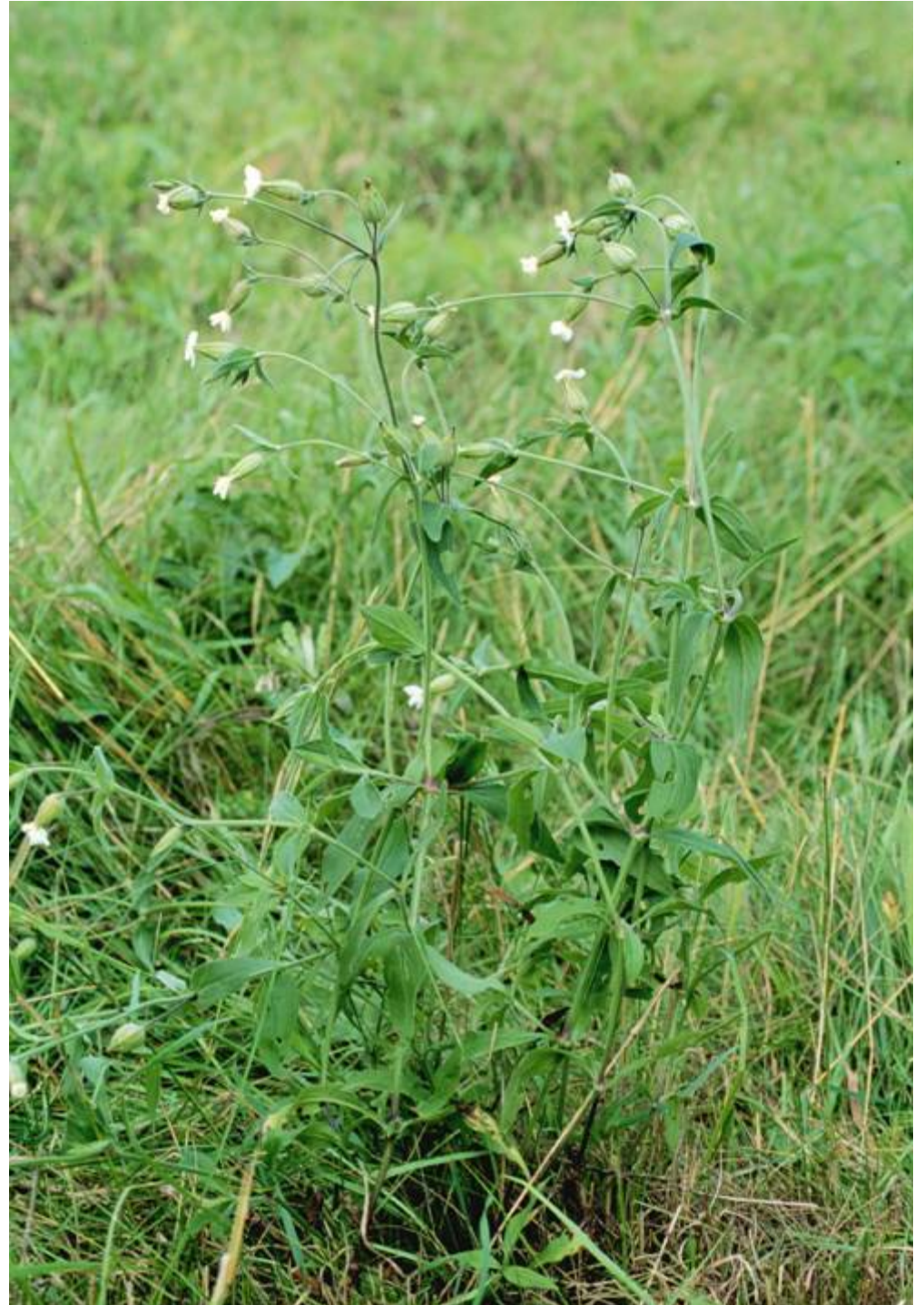
Canada thistle (*Cirsium arvense*) and other weeds in creeping red fescue (*Festuca rubra*)



White Cockle

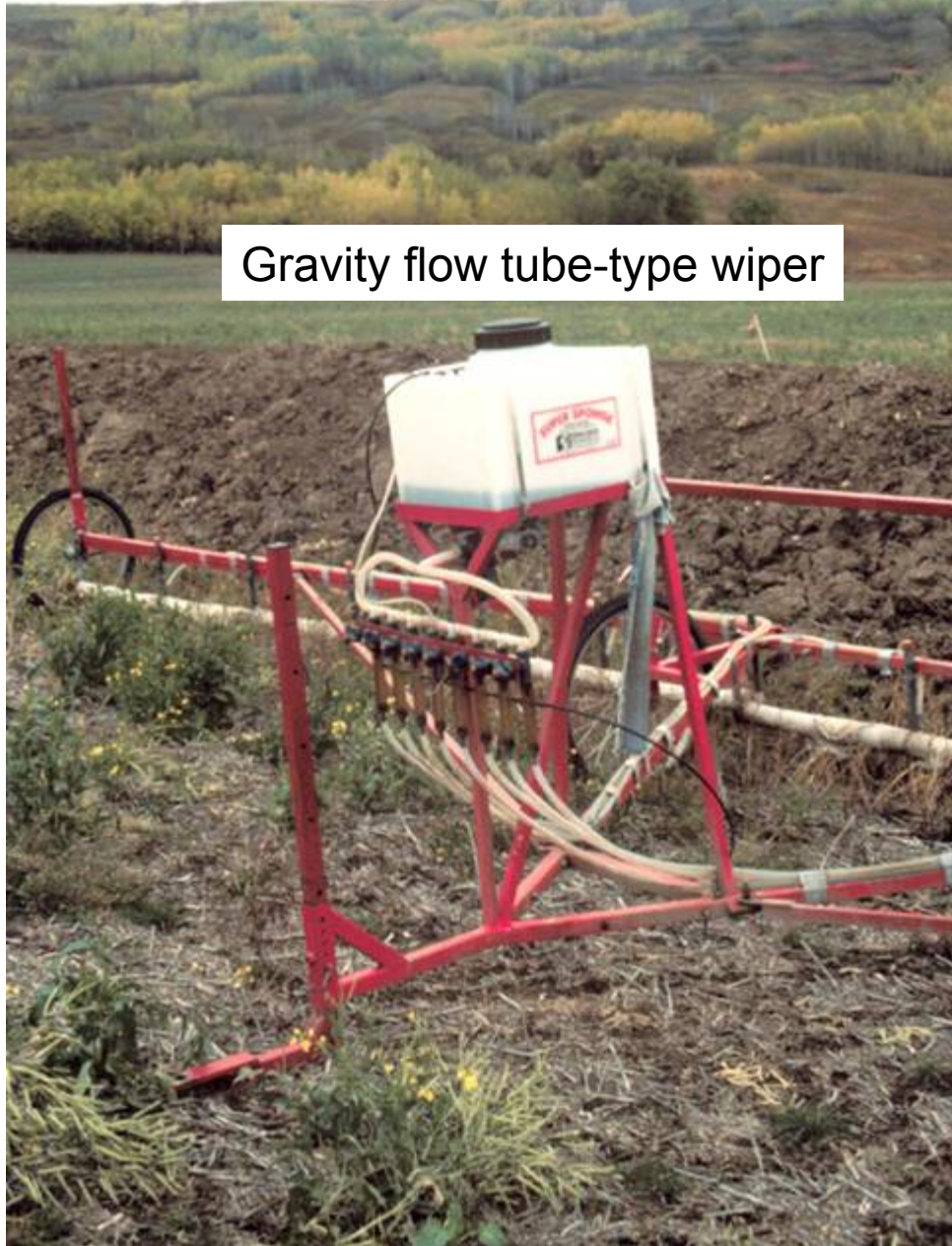
(*Silene pratensis*)

- Biennial (annual - perennial)
- Dioecious
- In hay land, pastures, annual crop land and non-crop land
- A problem in alfalfa, clover and timothy seed





In-row shielded sprayers can be used to apply glyphosate for weeds and volunteer plants



Gravity flow tube-type wiper



Pressure-flow roller-type wiper

WEED WIPERS

Used to apply glyphosate for controlling grassy weeds when establishing forages without a cover or companion crop.

Custom-made 14-m-wide, 3PH, folding Weed Wiper with Speidel tubes



2003.6.1

All-Terrain Vehicle with multiple hand-held sprayer heads for spot spraying of weeds and off-type crop plants



Shielded spot-sprayer boom mounted on the front of an All-terrain vehicle



Wide-boom high-clearance sprayer applying metsulfuron-methyl (Ally) in the autumn before the winter snows arrive to control dandelions (*Taraxacum officinale*) in a Timothy seed crop



A photograph of a grassy field. The grass is a mix of creeping red fescue and quackgrass. The creeping red fescue is the dominant species, forming a dense mat. The quackgrass is a secondary species, appearing as taller, more upright clumps within the mat. The overall color is a vibrant green.

Quackgrass (*Elytrigia repens*) in creeping red fescue (*Festuca rubra rubra*)



Canada thistle
(*Cirsium arvense*)



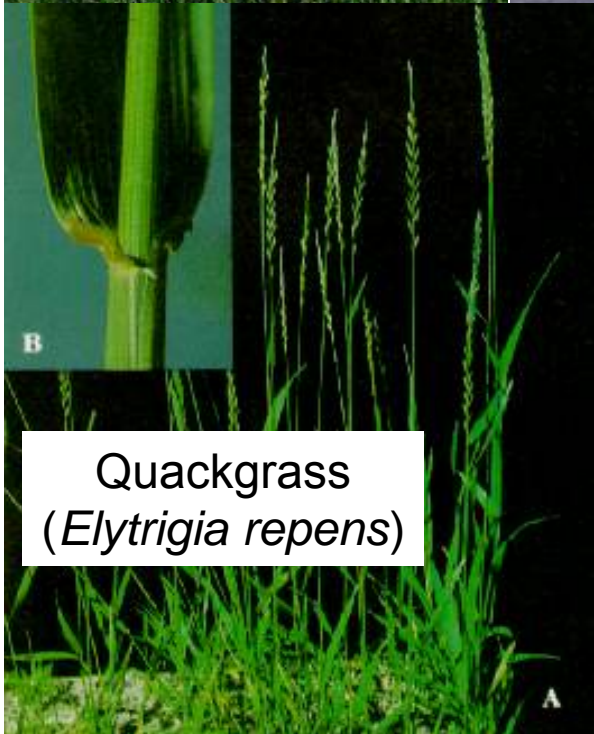
Cleavers
(*Galium aparine*)



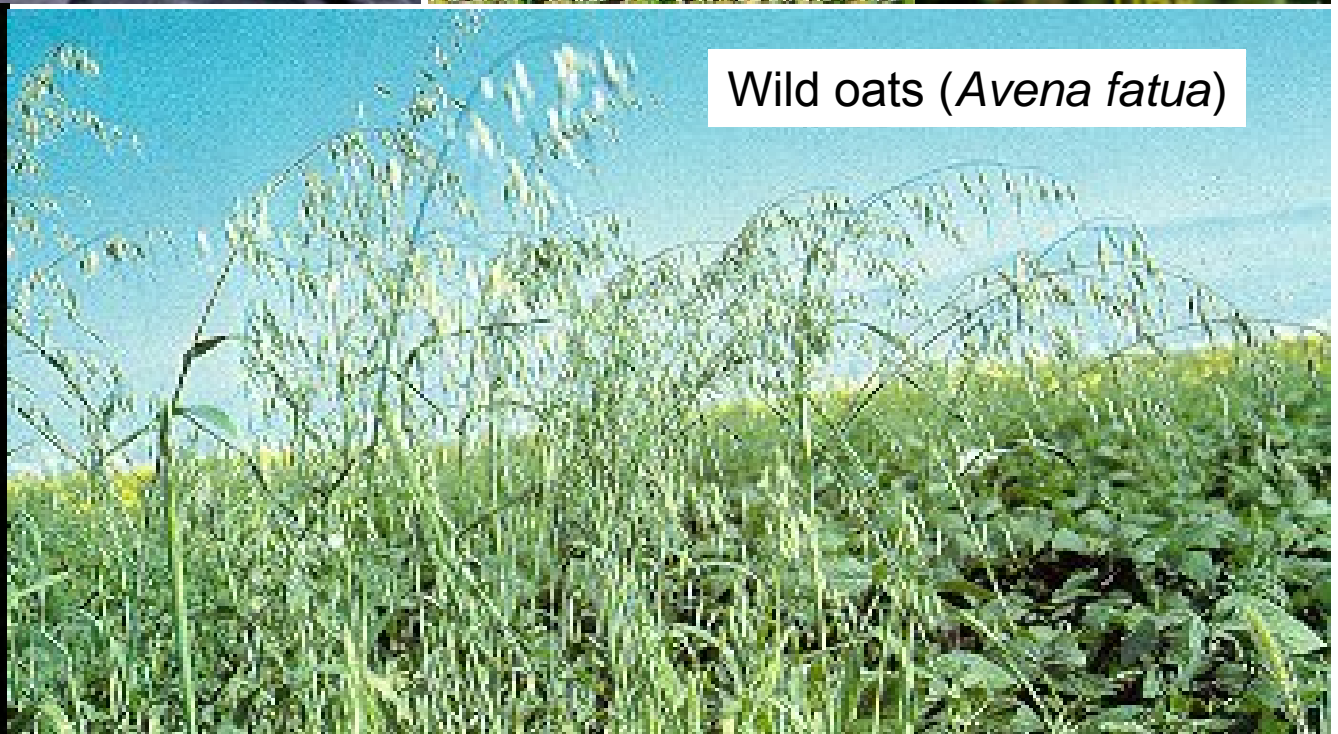
Night-flowering catchfly
(*Silene noctiflora*)



Yellow toadflax
(*Linaria vulgaris*)



Quackgrass
(*Elytrigia repens*)



Wild oats (*Avena fatua*)

Dandelion (*Taraxacum officinale*)



White cockle (*Silene alba*)



Foxtail barley (*Hordeum jubatum*)



Scentless chamomile (*Matricaria perforata*)



Seeds of cleavers (*Galium aparine*) in seed of creeping red fescue (*Festuca rubra rubra* L.)

Genetic Purity Issues 1

- Regulations and Procedures for Pedigreed Seed Crop Production are designated by the Canadian Seed Growers' Association (CSGA) Circular 6-2005 Publication which is available at www.seedgrowers.ca
- The Canadian Food Inspection Agency of Agriculture & Agri-Food Canada (AAFC-Federal Government) does the Field Inspections and passes the information to the CSGA who then issue crop certificates to the seed growers or their designated agents (seed contractors, etc.)

Genetic Purity Issues 2

- For most open-pollinated crop species, the CSGA has three classes of pedigreed seed: Breeder→Foundation→Certified
- Variety purity is maintained by limits on generations or multiplications, parent seed pedigree verification, restrictions on previous land use, isolation distance, impurities, seed crop inspections, and the number of successive crops for perennials

Genetic and Purity Issues 3

- Enforcement of the Government of Canada's federal Seeds Act is handled by the CFIA of AAFC, see www.inspection.ca
- Pedigreed seed growers must be members of CSGA
- Field Inspections are done on a cost recovery basis
- The seed crop must be inspected before harvest

Genetic Purity Issues 4

- Current concerns:
 - Increasing costs for field inspections for growers
 - Efficacy and timeliness of field inspections (inspectors may be seasonal employees who lack familiarity with the perennial crop species being inspected, and are trying to cover large fields in a vast area of land)
 - Should field inspection focus strictly on ‘trueness to genetic type’ of the variety (based primarily on seed labels/tags) and let the subsequent seed analysis control weed seed and other contaminants?

Reasons for Declining Pedigreed Status

- Other crop kinds in excess of standards
- Off-types in excess of standards
- Unsuitable previous land use
- Very weedy crops
- Insufficient isolation
- Seed planted not eligible
- Crop cut before inspection
- Age-of-stand requirement exceeded

Handout on Canadian Forage Seed Crops, Weeds and Herbicide Options

- Information for the Peace River Region of Alberta and British Columbia in north-western Canada
- Vast area from latitude 55 to 60 degrees north and from Rocky Mountains to Lesser Slave Lake
- The area grows about 50% of Canada's forage seed, as much as 100,000 ha/year

Handout on Canadian Forage Seed Crops, Weeds and Herbicide Options

- Our major crops are *Festuca rubra rubra*, *Phleum pratense*, *Bromus inermis* and *B. biebersteinii*, *Trifolium hybridum*, and *T. pratense*, with some *Festuca aruninacea*
- For each crop the major weeds, and the herbicides we use for their control, are listed in the handout
- A list of Questions and Comments on Weed Control and Genetic Purity was sent to participants prior to the Workshop



Natural bioherbicide (*Phoma macrostoma*) on Grasses

Controls about 80% of broadleaved weeds for several months as the weeds emerge, including Canada thistle (*Cirsium arvense*) and Dandelion (*Taraxacum*)

Untreated red fescue

Treated Timothy