

PREVENTING TREE PLANTING INJURIES



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Introduction

This booklet provides information on how you can prevent injuries when planting trees.

Because of the physical demands of the job, tree planters in B.C. are at risk of getting injured at work. These injuries occur mostly to the muscles, tendons, nerves, and ligaments. One reason for these injuries may be the pace of work – many tree planters try to plant as many trees as possible, as fast as possible.

Depending on the terrain, an experienced tree planter can plant from 100 to 200 trees an hour or up to 1,600 trees per day. The work is strenuous. Good planting techniques – along with maintaining good physical fitness and choosing an appropriate shovel – are key to preventing injury.

Why is tree planting so strenuous?

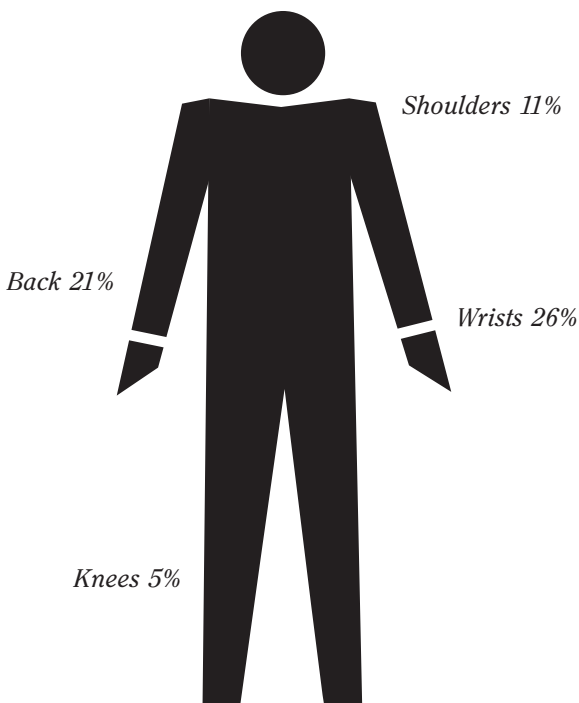
Based on planting 1,600 trees per day, a tree planter:

- ◆ Lifts a cumulative weight of over 1,000 kilograms
- ◆ Bends more than 200 times per hour
- ◆ Drives the shovel into the ground more than 200 times per hour
- ◆ Travels about 16 kilometres on foot while carrying heavy loads of seedlings

The way in which these activities are done – for example, forcefully gripping the shovel and trees, and twisting and bending the wrists – can contribute to injuries.

What are the injuries suffered by tree planters?

The following diagram shows parts of the body most frequently injured by tree planters. Some injuries are muscle strains to the back, shoulders, or knees. Other injuries are diseases such as tendinitis – a painful swelling of the tendons – and carpal tunnel syndrome – injury to a nerve in the wrist. Injuries to the wrists and back combined make up almost half (47%) of all reported injuries.



How can these injuries be prevented?

Here are some ways you can help prevent injury and disease:

- ◆ Precondition your body and pace yourself during a phase-in period.
- ◆ Choose the appropriate shovel.
- ◆ Recognize early signs and symptoms of injury.
- ◆ Use good planting techniques.

Precondition your body and pace yourself during a phase-in period

Between planting seasons, your body adjusts to less demanding physical activities that don't involve the physical requirements of planting trees. Whether you are a first-time tree planter or a tree planter returning for another season, your body needs to adjust *gradually* to new physical demands.

Muscular aches and pains are common during the first week of planting, but the effects of these aches and pains can be reduced by preconditioning your body – for example, by running, biking, hiking, and weight training – *before* the season begins.

When you start planting at the beginning of the season, pace yourself by working more slowly, carrying and planting fewer trees, or working shorter days to get your body used to the work. Stretch your back and shoulders from time to time. Relax your hand muscles throughout the day by opening and closing your fingers frequently.

Choose the appropriate shovel

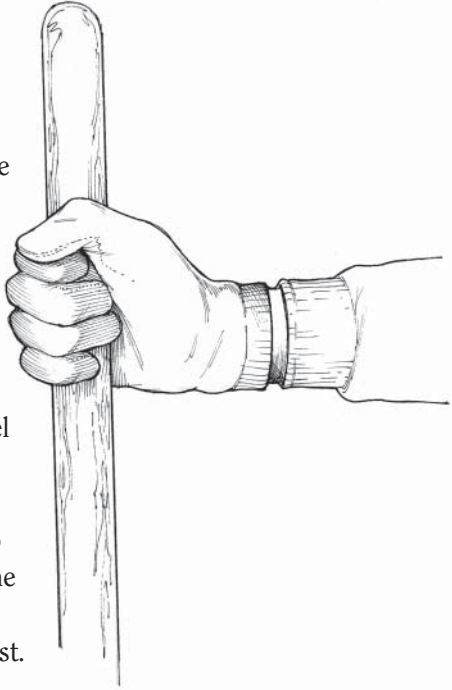
Choose a shovel that is the right length for you. If the shovel is too long or too short, it will not allow you to keep a healthy posture – your back straight, not hunched over. Because shovels are carried and lifted up and down all day, they should be lightweight.

A straight-handled shovel is preferable because it keeps your wrists straight and positioned to get the most power, as shown here.

A D-handled shovel may sometimes be lighter in weight, making it easier to carry, but using one can result in more bending of the wrist.

This is especially true when using the shovel to make the hole. Keeping your wrists straight helps reduce the risk of injury to your wrists and arms.

Some planters keep a number of different shovels on hand to accommodate different planting conditions.



Recognize early signs and symptoms of injury

Numbness, tingling, swelling, redness, and pain in the wrists, shoulders, or back are possible signs and symptoms of injury. If you continue to plant when you are injured, the symptoms could progress into a more serious condition. If you experience signs or symptoms of injury, take appropriate action:

DO

- ◆ Report the symptoms to your supervisor and get first aid.
- ◆ See a physician, if necessary.
- ◆ Give your muscles and tendons a break – take a day or two off and do chores around camp or work a shortened day.

DON'T

- ◆ Don't take painkillers without the consent of a physician – they may make you drowsy and may only numb the pain temporarily.
- ◆ Don't continue planting – this will only worsen your condition.
- ◆ Don't tape your wrist and continue to work – this may worsen the injury.

To help minimize signs and symptoms of injury:

- ◆ Move to softer ground, *if possible*, rather than pounding too hard to start a hole
- ◆ Change hands regularly, *if possible*, to avoid overusing them
- ◆ Use your foot and leg to drive the shovel in and open the hole, not just your arms and back
- ◆ Keep your wrists straight as much as possible
- ◆ Loosen your grip on the shovel and the seedling
- ◆ Check your technique routinely to ensure you are using proper posture and keeping your wrists straight
- ◆ Bend your knees when bending over

Use good planting techniques

To avoid injury when tree planting, you need to be aware of the potential for injury and good planting techniques. The following planting techniques are used by many tree planters in B.C.

Planting a tree can be broken down into five steps as shown on the following pages.

1. Looking for a spot

When looking for a place to plant, tap your shovel lightly on the ground until you find suitable ground. Avoid thrusting the shovel forcefully. Sometimes you will hit rock while looking for a spot. In such cases, pushing more forcefully than needed on the shovel may cause unnecessary impact to the wrist and arms.

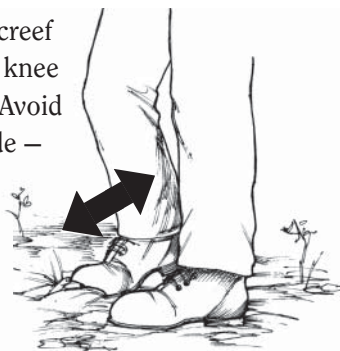


Tap the shovel lightly when looking for a spot.

2. Screefing

Screefing is removing the duff (rotting vegetation) that covers the ground to expose the dirt below. There are two ways to do this, depending on ground conditions. If the layer of duff is thick, screef with your *shovel*. To do this, stand with your legs apart and knees slightly bent. Hold the shovel directly above the target area and keep your wrists straight as much as possible. Use *frequent, shallow scoops* in a front-to-back motion. Using fewer, more forceful scoops, digging aggressively, or twisting your wrists to screef can contribute to wrist and arm injuries.

If the duff is thin, you can boot screef safely by bending your leg at the knee in a forward-backward direction. Avoid moving your legs from side to side – this could contribute to a knee strain.



Boot screef in a forward-backward motion.



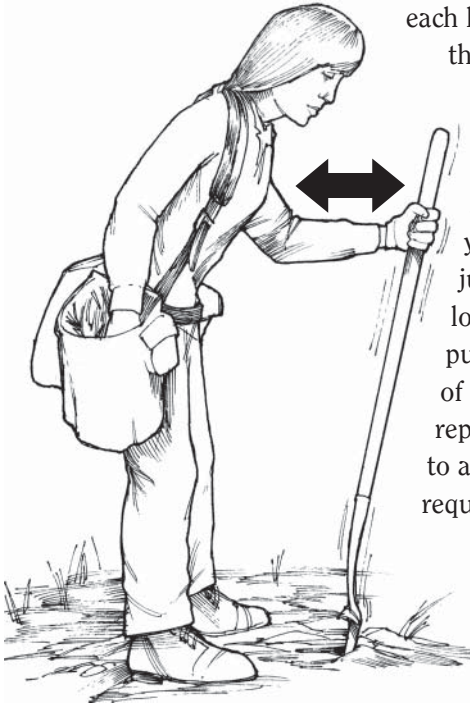
When shovel screefing, use shallow scoops and keep your wrists straight.

3. Making the hole

In this step, you need to make a hole *deep* enough to plant the tree roots. This step can be hazardous to your wrists because of the potentially high impact forces involved in forcing the blade into the ground. To avoid wrist injury, keep your arms and wrists loose on the handle of the shovel when impact occurs. Remember to keep your wrist as straight as possible – try not to let it bend as the shovel hits the ground.

In *very soft ground*, you can make the hole with just one impact. In *harder ground*, consider inserting the blade in the ground and loosening the dirt *twice* for

each hole. First insert the shovel about half the required depth, then push or pull on the shovel handle with your *arm* – not just your wrist – to loosen the dirt. Then pull the shovel out of the ground and repeat this procedure to achieve the total required depth.



To make the hole, use your arm muscles, and keep your wrist straight.



In very hard ground, put your foot on the blade to make the hole.

In *very hard ground* conditions, you may need to use more force to make a hole. To do this, put some of your body weight on the shovel by placing your foot on the top of the blade and moving the shovel handle back and forth at the same time. If necessary, lean your body directly against the shovel to help open the hole.

4. Placing the tree in the ground

To place the tree in the ground, grip the seedling loosely with the palm of your hand and bend slightly at the knees. Guide the roots of the seedling along the shovel blade to the bottom of the hole. Keep your wrists straight as much as possible – twisting the wrist repeatedly can increase the risk of injuries.



Place the tree with knees bent and wrist straight.

5. Closing the hole

The final step is to close the hole around the seedling. Here are two ways to close the hole:

◆ Kicking

After the seedling is placed in the ground, pull your shovel out and kick down on the dirt with your heel near the base of the tree. Avoid using unnecessary, excessive force to close the hole.

◆ Back Cutting

After the seedling is placed into the ground, pull your shovel out and insert it behind the seedling. Pull the handle of the shovel away from the seedling to close the bottom of the hole. Then pull your shovel out and give the ground near the base of the tree a light tap with the heel of your boot.

For more information...

Additional information for tree planters can be found in the following publications:

- ◆ *Minimum Safety Guidelines for Tree Planters.*
This booklet covers a wide range of subjects – preparing for work, worksite transportation, camp standards, first aid, etc. The booklet also covers workers' and employers' responsibilities for safety and health. For copies of this publication, see the Ministry of Forests and Range, Forest Practices Branch web site:
<http://www.for.gov.bc.ca/hfp/silviculture/planting/MINSAFE/MINSAFEE/MSGHOME.HTM>.
- ◆ *Putting People First: Minimizing Tree Planters' Exposure to Seedling Pesticides.* This pamphlet informs workers and employers of their rights and responsibilities for notification of pesticides applied to seedlings, and also provides guidelines to workers about how to handle treated seedlings safely. For copies of this publication, see the Ministry of Forests and Range, Forest Practices Branch web site:
<http://www.for.gov.bc.ca/hfp/silviculture/planting/PPF/PPF1.HTM>.

WorkSafeBC Offices

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Abbotsford

2774 Trethewey Street V2T 3R1
Phone 604 276-3100
1 800 292-2219
Fax 604 556-2077

Burnaby

450 – 6450 Roberts Street V5G 4E1
Phone 604 276-3100
1 888 621-7233
Fax 604 232-5950

Coquitlam

104 – 3020 Lincoln Avenue V3B 6B4
Phone 604 276-3100
1 888 967-5377
Fax 604 232-1946

Courtenay

801 30th Street V9N 8G6
Phone 250 334-8765
1 800 663-7921
Fax 250 334-8757

Kamloops

321 Battle Street V2C 6P1
Phone 250 371-6003
1 800 663-3935
Fax 250 371-6031

Kelowna

110 – 2045 Enterprise Way V1Y 9T5
Phone 250 717-4313
1 888 922-4466
Fax 250 717-4380

Nanaimo

4980 Wills Road V9T 6C6
Phone 250 751-8040
1 800 663-7382
Fax 250 751-8046

Nelson

524 Kootenay Street V1L 6B4
Phone 250 352-2824
1 800 663-4962
Fax 250 352-1816

North Vancouver

400 – 224 Esplanade Ave. W. V7M 1A4
Phone 604 276-3100
1 888 875-6999
Fax 604 232-1558

Prince George

1066 Vancouver Street V2L 5M4
Phone 250 561-3700
1 800 663-6623
Fax 250 561-3710

Surrey

100 – 5500 152 Street V3S 5J9
Phone 604 276-3100
1 888 621-7233
Fax 604 232-7077

Terrace

4450 Lakelse Avenue V8G 1P2
Phone 250 615-6605
1 800 663-3871
Fax 250 615-6633

Victoria

4514 Chatterton Way V8X 5H2
Phone 250 881-3418
1 800 663-7593
Fax 250 881-3482

Head Office / Richmond

Prevention Information Line:
Phone 604 276-3100
1 888 621-7233 (621-SAFE)

Administration:

6951 Westminster Highway
Phone 604 273-2266

Mailing Address:

PO Box 5350 Stn Terminal
Vancouver BC V6B 5L5

After Hours

Health & Safety Emergency

604 273-7711
1 866 922-4357 (WCB-HELP)

