

Introduction

The job is physically demanding. Combine that with the rough terrain of a recently logged cut-block and the extreme motivation of most planters (they're paid by the planted seedling) and you have a recipe for injury.

Training Requirements

Field Training will be conducted prior to and throughout the planting season.	Required
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Critical Task Inventory

- Working and Walking in the Bush
- Crossing Slash Piles or Windrows
- Signaling a Helicopter
- Working in Burns
- Stock Handling
- Proper Equipment Set-Up
- Warm-Up and Stretching
- Gripping a Shovel
- Screening
- Putting the Shovel into the Ground
- Putting the Tree into the Ground
- Removing the Shovel from the Ground
- Looking After Your Feet
- Looking After Your Hands
- Hydrating Your Body
- Maintaining a Proper Diet
- Getting Enough Sleep
- Preventing Illness
- Appendix 1 – Injury Statistics
- Appendix 2 - Ergonomic Injuries

PPE Requirements

Image	Description	Standard
	Sturdy Footwear	Required
	Hard Hat	Required on Some Sites
	Safety Glasses	Required on Some Sites

Clothing Requirements

Image	Description	Standard
	Rain Gear	Required
	Fox 40 Whistle	Required
	Warm and Dry Clothing	Required
	Personal Hydration System	Required
	Small Water Bottle	Required
	Bama Socks	Recommended
	Bug Jacket	Recommended
	Sun Hat	Recommended
	CSA Polarized Glasses	Recommended
	Padded, Rubber, and/or Gripper Gloves	Recommended
	Long Sleeve Shirt	Recommended

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Type Of Hazard: H = Health (acute or chronic) S = Safety (people and equipment) Q = Quality P = Production E = Environment

Safety Equipment

Image	Description	Standard
	Insect Repellent	DEET is Recommended
	Sun Screen	Recommended
	Saline	Recommended for Contact Lens Wearers
	* Personal First Aid Kit	Recommended
	Antibacterial Gel	Recommended
	Duct Tape	Recommended

* Note: Planter Access Kits are located in all vehicles.

Working and Walking in the Bush

It is not unusual to have absolutely no idea where on earth you are, so take the necessary precautions to ensure your safety.

Hazard Assessment	F	S	P	R
Getting Lost (S)	2	3	1	6

Buddy System

Workers are normally required to work with at least one other person. Always know where your partner is and never wander off or work alone.

Working and Walking in the Bush

How it Works

- Your planting partner is normally your check-in buddy.
- If you plant alone, your check-in buddy should be somebody in the same general area.
- Planters are responsible for arranging their own check-in buddy.
- Have at least visual contact with your check-in buddy three or more times throughout the planting day.
- Report to the supervisory staff if you have not been able to see your check-in buddy for any significant length of time that raises concern.
- Leave the workplace each day with your check-in buddy.
- When vehicles are employed, do not allow the trucks to leave the worksite at the end of the day without your check-in buddy.

Traveling by Foot

Quite often, when access has deteriorated, trucks have broken down, or helicopters are fogged in, planters are required to travel by foot.



Precautions

- Never travel alone.
- Make sure somebody always knows where you are going.
- Travel only as fast as the slowest member of your party.
- Travel with a two way radio and a map if possible.
- Never take short cuts. Even bush savvy veterans get turned around.

Crossing Slash Piles or Windrows

Crossing slash piles or windrows can be hazardous. Planters can fall into a slash pile cavity, be struck by an unbalanced log or fall onto a sharp stick. The likelihood of falling, and the potential consequences of a fall, increases when you're carrying heavy planting bags.

Hazard Assessment	F	S	P	R
Slip, Trip, Fall (S)	2	2	1	5
Unstable Timber (S)	2	2	1	5

Controls

It is suggested that you stay off slash piles and windrows whenever possible.

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Signaling a Helicopter

Many treeplanting contracts require the use of helicopters to deliver workers and seedlings. Although the chopper can be in your area all day, it is surprisingly difficult to signal a helicopter when you are in need of emergency assistance.

Hazard Assessment	F	S	P	R
Invisible to Helicopters (S)	1	3	1	5

Controls

In the event of an emergency, if there is a helicopter in the area (and you don't have access to a radio), turn your silvicool tarp upside-down and spread it out. The reflective surface can catch a pilot's eye alerting them to your emergency. Most helicopter pilots recognize this as standard emergency procedure at a treeplanting project.



Working in Burns

Breathing in soot and charcoal over a long period of time may contribute to the development of cancer or lung problems.

Hazard Assessment	F	S	P	R
Charcoal Inhalation (H)	2	2	1	5

Controls

- If conditions are especially nasty, wear a dust mask or bandana over your mouth. This may prevent "hacking up a lung" at night.
- Avoid kicking up dust and ash as much as possible.
- If it's windy, try planting on the down-wind side of your body.

Stock Handling

Throughout the forest industry, there have been significant reductions in the use of pesticides on seedlings; however, there is still the potential that you will be planting treated seedlings.

Hazard Assessment	F	S	P	R
Back Injury (S)	3	3	1	7
Seedling Damage (S)	3	3	1	7
Pesticide Exposure (H)	3	3	1	7
Spruce Rash (H)	3	3	1	7

Spruce Rash

When planting spruce, many people will develop small red, somewhat painful bumps on their arms, especially along the more tender skin on the inside of your arm.

- This is due to a local irritation caused by the spruce needles. To prevent spruce rash, wear a long-sleeved shirt.

Pesticide Safety

It is your right and responsibility to know if pesticides have been applied to the seedlings you are planting. If in doubt, ask your supervisor. A 1988 study of treeplanter exposure to pesticides found that treeplanter exposure is well within acceptable levels, provided that necessary precautions are followed.

Precautions

- Wear a long-sleeved shirt.
- Wear impervious gloves.
- Clean hands with soap and water before eating or smoking.
- Wash clothes regularly.
- Always use proper lifting techniques when handling stock to prevent back injuries.

Seedling Boxes

- Residual Pesticides – Seedling boxes may contain residual pesticides if the trees were treated. As a rule of thumb, don't use tree boxes for storing your clothing or lunch either on or off the block.
- Flammable Wax Coating – On hot days, the wax on the seedling boxes can become sticky as it melts out of the cardboard. This wax is quite flammable and, once ignited, can flare up in a hurry. Be very careful when smoking near seedling boxes, especially on hot days.

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Proper Equipment Set-Up

Choosing equipment that is customized for your height can make all of the difference to your day of treeplanting.

Hazard Assessment	F	S	P	R
Personal Injury (S)	3	3	1	7

Shovel Height

Shovels that are too tall or too short for the user, and the ground conditions, can contribute to ergonomic injuries. See the *Treeplanting Shovel Sizing and Customization Hazard Assessment and Training Briefing* for guidelines and precautions.

Shovel Weight

Preliminary studies suggest that planters who use light weight shovels may be more pre-disposed to injury. A certain degree of shovel weight is important:

- Use the weight of your shovel to help get it in the ground. The less effort that you exert with your arms to create the necessary downward force the better.
- Shovel weight is directly correlated to the amount of shock you feel when you hit a buried rock or root. Light weight shovels transmit a much stronger jolt.

Precautions

- Avoid using a light weight shovel for anything other than the softest of ground conditions.
- Minimize arm effort by using your feet to help push the shovel in the ground.
- Be aware of changing ground conditions that could make a light shovel hazardous to use.

Shovel Grip

- Shape – New handles are available for planting shovels that place the wrist in a more “Ergonomically correct” position. New planters and planters with a history of ergonomic injuries are encouraged to use these designs.
- Twist –Any planter can benefit from improved tool ergonomics by slightly twisting their grip relative to the blade. This, however, makes the shovel suitable for either left-handed or right-handed use – not both.



Proper Equipment Set-Up

Planting Bags Set-Up

- Adjust bags properly. Wear all straps and distribute the weight evenly.
- New planters should work with their foreman to get planting bags fitted and positioned properly. Many new planters adjust their bags improperly.

Carrying the Weight

- Many planters find that carrying trees in the rear pouch distributes the weight in such a way that it is actually harder on your legs than putting the same number of trees in only the side pouches.
- Don't carry so many trees that you knees feel like they are going to buckle. Light bag-ups conserve energy. Top planters bag-up relatively light loads and plant lots of them.
- Steep slopes or extremely uneven ground should result in you bagging-up even more lightly so you can move quickly, and avoid falling.

Warm-Up and Stretching

- Give your muscles a quick warm up and then do a little stretching. You'll get your body ready to start planting injury-free.
- Stretch only after some light physical activity that can warm-up your muscles.
- Warm muscles stretch nicely – cold muscles tear.

Hazard Assessment	F	S	P	R
Torn / Strained Muscles (S)	3	3	1	7
Musculoskeletal Injuries (S)	3	3	1	7

Lifting

- When unloading transport trucks or setting up camp, remember to lift with your legs, not your back.
- Keeping the load close to your body prevents unnecessary strain on your back.
- When carrying a heavy load, avoid twisting your torso.

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Warm-Up and Stretching

Easy Stretches

Stretching should be done slowly without bouncing and preferably, once the muscles have been warmed up. Stretch to where you feel a slight, easy stretch and hold this feeling for 5-30 seconds. As you hold this stretch, the feeling of tension should diminish. If it doesn't diminish, just ease off slightly into a more comfortable stretch. The easy stretch reduces tension and readies the tissues for the developmental stretch.

Developmental Stretches

- After holding the easy stretch, move a fraction of an inch farther into the stretch until you feel mild tension again. This is the developmental stretch that should be held for 5-30 seconds. This feeling of stretch tension should also slightly diminish or stay the same. If the tension increases or becomes painful, you are overstretching. Ease off a bit to a comfortable stretch. The developmental stretch reduces tension and will safely increase flexibility.
- Hold only stretch tensions that feel good to you. The key to stretching is to be relaxed while you concentrate on the area being stretched. Your breathing should be slow, deep and rhythmical. Don't worry about how far you can stretch. By stretching in a relaxed manner, limberness and a possible reduction in musculoskeletal injuries will become just one of the many byproducts of regular stretching.
- The following are some basic stretches that crew leaders can take their crews through or have their planters do on their own. Make sure to warn people to not stretch cold muscles and to follow the easy and developmental stretching guidelines. **Warning:** If any workers have had any recent surgery, muscle or joint problems, ensure that they have consulted a health care professional before starting a stretching program.

Neck Rotations

Straightforward - just rotate the neck slowly in a circular motion five times one direction and five times in the opposite direction.

Trunk Rotations

Bend at the hips forward, rotate to one side toward the backside, arch back at this point, and continue to the other side. This circular motion can be repeated five times each direction.

Warm-Up and Stretching

Arms Rotations

Simply swing the arms in big circles at your side. Make sure to do this in both directions.

Ankle Rotations

Put toes on the ground and rotate ankle five times in each direction.

Shoulder Shrugs

Shrug shoulders back. Hold for 5 seconds moving progressively further back.

Forearm Flexors

Hold both arms out directly in front of body. With one hand pull back on the four fingers of the other hand until you feel the stretch in the forearm. Switch to do the other arm.

Calf Stretch

Put arms up against a vehicle or tree as if you are attempting to push it with one leg ahead of the other one. Make sure the heel of the foot at the rear is on the ground. Lunge the hips forward until you feel the pull in the calf muscle of the rear leg. If your heel has to lift off the ground you have gone too far.

Quad Stretch

Lie on your left side and rest the side of your head in the palm of our left hand. Hold the top of your right foot with your right hand between the toes and ankle joint. Move the front of your right hip forward by contracting the right butt (gluteus) muscles as you push your right foot into your right hand. This should stretch the front of your thigh. Hold an easy stretch for 10 seconds while keeping your body in a straight line. Do this the opposite way to stretch out the other thigh.

Hamstring Stretch

Stand with feet shoulder width apart and knees slightly bent. From the hips down, bend over at the hips to touch the toes. When you feel the stretch in the hamstrings, hold this position. Make sure to not overstretch this muscle especially when cold.

Other Stretches

These are examples of basic stretches that can help reduce musculoskeletal injuries. Any other stretches that planters want to do should be encouraged as long as they are educated on the easy and developmental stretching guidelines to ensure that they don't pull a muscle.

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Gripping a Shovel

Regardless of what type of shovel you choose (D Handle, Ergo D Handle, Oval D Handle, Shock Absorbing Handle or Staff), ensure that your grip is loose.

Hazard Assessment	F	S	P	R
The Claw (S)	2	2	1	5
Too Much Padding (S)	2	2	1	5
Shock to Arm (S)	2	2	1	5

The Claw

A condition caused in planter's shovel hands where finger(s) "snap" in a bent or straight position. This is often caused by holding the shovel handle too tightly. Experiencing "the claw" for the first time can be a little unnerving. Talk to the first aid attendant and they will help you loosen your hand. The official term is Dupuytren's Contracture.



Dupuytren's contracture

Handle Padding and Grip Diameter

Adding extra padding to the grip of a D-handle shovel (i.e. a dense neoprene) will increase the grip diameter of the handle and absorb some of the impact when planting. However, too much padding relative to hand size can promote injuries. If the grip diameter is too large for your hand, it requires more muscle strength to grip the shovel – particularly when pulling it out of the ground.



Grip the Side of the D-Handle

Holding the side of the D-Handle allows your hand to slightly slide down the side with each impact. This greatly reduces the potential of tendonitis. Try this technique in rocky or rooty ground.

Shock Absorbing Handle

If you are looking for a new product, try the new Shock Absorbing Handle. It takes the impact instead of your body.



Screening

Screening all day is very hard work. Your best defense is to have your arms and back preconditioned to physical labour.

Hazard Assessment	F	S	P	R
Acute Knee Damage (S)	2	2	2	6
Shoulder or Back Injury (S)	2	2	2	6
Hand Blisters (S)	2	2	2	6
Chronic Knee Damage (H)	2	2	2	6

Boot Screening

Screening with your feet is appropriate for some types of ground. When boot screening, use a heel-to-toe motion to avoid knee damage – the side-to-side motion is very hazardous.

Shovel Screening

Shovel screening is required on projects where there is a lot of debris to be moved in order to prepare the planting spot. To adequately prepare the site, you may have to cut through moss, roots and sticks.

Shovel Screening Precautions

- Space your feet at shoulder width or wider.
- Bend with the knees.
- Use shallow scoops and keep your wrists straight.
- Allow the blade edge to slice the ground rather than brute force to tear it apart.
- Know when to stop and visit the first aid attendant. Report pain before it becomes an injury. First aid attendants can help you recover.
- Wear gloves to protect your hands from abrasion.
- Duct tape or otherwise pad the top of your shovel blade (socket).



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Putting the Shovel into the Ground

There are many factors that can reduce your effectiveness while planting; such as, how high you lift your shovel, arm motion, and/or use of your feet.

Hazard Assessment	F	S	P	R
Repetitive Strain Injury (S)	3	2	1	6

Pivot at the Elbow

If you lift your shovel unnecessarily high to slam it into the ground, you risk shoulder injury. Limiting arm motion (as much as possible) to the elbow will permit you to exert enough force to use your shovel effectively. You will be less prone to injury and other shoulder aches. Use your foot to assist in hard or rocky ground.



Try to avoid raising your whole arm (pictured). This can lead to tendonitis and shoulder pain.

Use Your Feet

When the ground is hard or filled with rocks and/or roots, it can be very difficult to get your shovel into the ground to plant the tree. You stand a very good chance of injuring your shoulder, arms and hands if you slam your shovel into hard ground repeatedly.

- Tap your shovel on the ground looking for that “right spot”.
- Put your foot on the shovel and use your weight to drive the blade into the ground.
- Rather than using kicking power, use your weight - it’s also easier on your feet.

Putting the Tree into the Ground

Body positioning and how the tree is inserted into the ground can make a significant difference to the wear on your back and wrists. It will also affect your fatigue level and productivity.

Hazard Assessment	F	S	P	R
Repetitive Strain Injury (S) (S)	3	2	1	6
Fatigue (S)	3	2	1	6
Hand Injury (S)	3	2	1	6
Back Injury (S)	3	2	1	6

Back Precautions

- Bend slightly at the knees when planting. This will greatly reduce unnecessary strain on the lower back and hamstrings.
- Avoid bending when twisted to one side.
- Use your shovel as a support when rising from a stooped position. Be sure to keep your arm close to your side or you may get a sore shoulder.

Wrist Precautions

Some planters get repetitive strain injuries in their planting hands. This is often attributed to excessive bending of the wrist while planting the tree – swinging/pivoting the roots into the ground.

Avoid any motion that involves the repeated bending of the wrist. Modify your technique to keep your wrist position relatively static. Planters who have learned to insert the tree into the ground straight down (no sweep) are much less likely to have wrist pain and injuries.

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Removing the Shovel from the Ground

Some planters awkwardly twist their bodies every time they plant a tree.

Hazard Assessment	F	S	P	R
Back Injury (S)	3	2	1	6
Shoulder Injury (S)	3	2	1	6

Controls

This twisting is a result of the planter keeping his / her hand on the handle of the shovel while being completely bent over with their hand in the ground. To compound the problem, these planters will often tense their muscles in this position by pulling up on the shovel while still bent over (often your hands need to be on the roots to keep the tree in place). This is a very dangerous practice that can cause both acute and chronic back problems.

Can You See the Difference?



The elbow up in the air is a clear sign of an awkwardly twisted body.

Looking After Your Feet

If you want to have a good season, you must take care of your feet. Looking after your feet on a daily basis will prevent a great deal of discomfort.

Hazard Assessment	F	S	P	R
Foot Problems (S)	2	2	2	6

Looking After Your Feet

Precautions

- Make sure your boots are comfortable before the start of the season.
- Bring/get a variety of shapes and sizes of Mole skin for applying to foot blisters.
- Always have dry footwear and socks for the end of the day.
- Wear sandals with dry socks in the evening if possible. Give your feet a dry out.



Insoles

Use an insole with good arch support. This aligns your ankle in its neutral position and creates a more linear path from the ground to your spine.

Foot Care Activities

- Dry your boots daily if possible.
- Wash and dry feet daily.
- Use foot powder to maximize drying.

Wrinkle Foot

- Your feet are likely to be wet for the better part of the day. If you don't have a boot leakage problem, you will have a heat problem. Try different footwear or less "hot" socks.
- Maximize drying in evenings. Use foot powder and open air. Try to stay off of your feet.



Blistering

- If your boots are rubbing your feet badly in one or more places and your skin is red, swollen and wearing thin, you need to get some help for your feet before they really hurt. Let the first aid attendant help you with your problem and start contemplating alternative footwear. If you weren't already wearing Bama socks, start now.
- 2nd Skin Burn Gel or Blister Pads are excellent for even the worst blisters - a moist gel pad removes almost all friction, and can be taped in place with Elastoplast™ tape.

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Looking After Your Hands

Planting will challenge your hands in many ways. Gripping the shovel, putting your hand in the ground, shovel screening and handling seedlings all take their toll. There are, however, a few precautions that you can take that will help keep your handles in reasonably good condition.

Hazard Assessment	F	S	P	R
Hand Problems (S)	2	2	2	6

Controls

Unprotected fingers take a beating. Use sturdy dish gloves or duct tape to protect your planting hand. If you are having problems with your fingers or fingernails, get some assistance from the first aid attendant.



Finger Nails

Keep your fingernails short to help reduce the potential for dirt “wedgies”. When packed in under your nails, dirt can pretty much pry your finger nail right off.

Planting Hand

There are two key approaches to protecting your planting hand. Both seem to be somewhat equally favoured by planters.

Rubber Gloves

Rubber dish gloves can be worn on your planting hand to help protect it from the seedling and the ground. Rubber gloves are hot and they get ruined often, however, they do keep your planting hand surprisingly well protected.

Duct Tape Gloves

Many planters have discovered that they can make a very functional “glove” out of duct tape each morning. Duct tape, when properly applied, can protect your fingers nicely from in-ground hazards. Duct tape finger gloves also have the benefit of making your fingers a little more stiff which makes it easier to plant trees.



Duct tape does not protect your hands from pesticides.

Hydrating Your Body

All planters benefit from proper hydration. A well hydrated person is not only safer and healthier, but they also plant more trees with less effort.

Hazard Assessment	F	S	P	R
Dehydration (S, H)	3	3	2	8

Volume per Day

Drink lots of water each day. Experts recommend between 500 ml and 1.5 litres per hour for high intensity work.

Frequency

Drinking frequently results in far greater absorption than bingeing. A few sips every five minutes is optimal. Drinking a litre at a time, 6-10 times a day has nowhere near the same effect.

Better than Water

Your fluid balance and protection from fatigue can be better maintained by drinking water with a little bit of salt and potassium chloride.

- Use a commercially available sports drink,
- Dilute sweetened orange juice with an equal amount of water and add 1/8 tsp of salt, or
- Add ¼ cup of sugar, 1/8 tsp salt and a pinch of potassium chloride for each litre of water.

Additional Resources

Refer to the Working in Hot Weather Hazard Assessment and Training Briefing for additional information on hydration.

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Maintaining a Proper Diet

Power Eating for Power Planting is a program developed by Dr. Delia Roberts of Selkirk College that promotes the health, safety and efficiency of planters who eat properly. The overall information is extensive, but the benefits are profound. Interestingly, Dr. Roberts is accustomed to training Olympic athletes in nutrition and exercise. The following are a few highlights.

Hazard Assessment	F	S	P	R
Improper Diet (S, H)	3	2	1	6
Fatigue (S)	3	2	1	6

Key Benefits

Optimal diet can:

- Make a huge impact on how you feel at any given time – during planting or during rest. When you feel good, you can work hard.
- Provide you with the energy to plant fast when you want to.
- Speed up the recovery of damaged tissues and tendons.
- Help your immune system keep you better protected from infections and viruses.

Eating Guidelines

There is far greater detail within the aforementioned program.

Breakfast (3+ hrs Prior to Planting)

Have a big breakfast that includes some high-fat foods such as cheese, bacon, sausage, or fried foods (e.g. hash browns).

Breakfast (2-2.5 hrs Prior to Planting)

Your body will have time to digest protein, but not much fat. Try foods such as eggs, low-fat breakfast meats, low fat yogurt, beans or French toast (with little to no syrup).

Breakfast (1-1.5 hrs Prior to Planting)

You should choose foods such as whole grain breads, small amounts of egg or cheese, oatmeal, pancakes (with yogurt or fruit) or low-fat muffins.

Breakfast (0.5 hrs Prior to Planting)

Try toast with jam, pancakes with syrup, processed cereals with sugar and low-fat milk, or even a liquid meal replacement.

Maintaining a Proper Diet

Lunch and Snacks

The time between snacks / bag-ups dictates what is best to eat. Eat at every bag-up.

During Planting

Hard candies, jujubes and gummy bears are all good means to keep the blood sugar up a bit between bag-ups.

Bag-Ups (45min to 1 hour)

Include the following:

- Fresh fruit – in chunks that are a bite or two
- Sports drinks or diluted orange juice with salt
- Sweet baked goods
- Cold baked potatoes
- Vegetables
- White rice
- Trail mix

Bag-Ups (1 to 2 hours)

Include the following:

- Half a sandwich – lean meat, cheese, bean spread, or peanut butter and jam. Go easy on peanut butter and cheese.
- 1-2 apples, pears or bananas
- Sweet baked goods

None of these suggestions are provided here to promote weight loss. It all has to do with energy being ready when it's needed.

After Planting

Having something to eat shortly after planting is done for the day can help a great deal with your day-end recovery.

If dinner will be one hour or more after finishing planting, you should have a snack which could include an extra sandwich, several pieces of fruit, and one or two muffins/squares/slices of tea bread, potatoes or rice. Have your snack with some additional fluids to help your body recover quickly from the day, and prepare for the next.

Vegetarians

Canada's Food Guide to Healthy Eating can be used as a guide for vegetarians who eat milk products and/or eggs.

The main difference will be that instead of meat, alternatives such as legumes, vegetables, grains, nuts, and eggs will be used. There is no need to combine these foods in any particular way to get sufficient protein. As long as milk products are used in recommended amounts, the diet will be sufficient in protein for adults.

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Getting Enough Sleep

Hazard Assessment	F	S	P	R
Fatigue (S)	2	2	2	6
Exposure to Disease (S)	2	2	2	6
Healing Decreased (S)	2	2	2	6

Fatigue

Treeplanters frequently live in a state of fatigue. Your body is not firing on all cylinders when you are fatigued. Recognize that your work is hard and get adequate rest.

Sleep

Sleep is the single most important activity that the body engages in for health maintenance, disease prevention, and healing. A typical treeplanter needs nine hours of sleep per night.

Notes

- Sleep deprivation is cumulative.
- Caffeine stays in the body for 5-8 hours and can negatively affect the quality of your sleep.
- Although alcohol induces sleep, it disturbs sleep cycles.



Working-fatigue is a safety hazard and will adversely affect your productivity and earnings. Get lots of rest.

Preventing Illness

Hazard Assessment	F	S	P	R
Beaver Fever (H)	2	2	2	6
Germ and Bacteria Exposure (H)	2	2	2	6
Contraction of Virus from Infected Mosquito (H)	1	3	1	5

Giardiasis (Beaver Fever)

- Giardiasis or Beaver Fever is a disease caused by the ingestion of infective cysts that are shed in the feces of wild animals. These microscopic cysts are most often found in water or mud and can remain infective in the environment for long periods of time.
- Humans are infected with Beaver Fever when they ingest these cysts by drinking contaminated water or by eating or smoking with dirty hands.
- Once a person is infected with Beaver Fever, it is very common to have reoccurring outbreaks of the symptoms months or years later.



Symptoms

Beaver Fever can put an end to your planting days. The main symptoms are diarrhea (mild to water hose), painful gas (which may include burping with a rotten egg smell), loss of appetite, headache, low-grade fever and overall fatigue. Some people may experience nausea and/or vomiting.

Never drink from streams, lakes, ponds or puddles.

Note: The acute phase lasts 7 to 14 days, during which time planting is out of the question. If you get Beaver Fever, plan to be down for a while.

Treatment

- One can become dangerously dehydrated from diarrhea, so it is important to replace all lost fluids/electrolytes and seek medical attention promptly.
- To get better you will need prescription medication.
- If you are infected, the disease can spread from you to others in camp. It is extremely important that you wash your hands thoroughly with soap and water after going to the bathroom.

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Prevent Illness

Prevention

- Wash your hands and face thoroughly with soap and water before eating, smoking or entering dining facilities.
- When out on the block, eat your lunch by using a plastic baggie to hold your food.
- Wash hands and face with soap and water before eating or entering the cook shack.
- Antibacterial gels can be used to clean your hands on the block.



Colds & the Flu

It can be expected that at least one person will come down with a nasty cold over the summer. The excessive fatigue, stress and lack of sleep associated with the beginning of the season, along with living in close association with many people, may predispose your body to illness. Getting sick not only affects how you feel, it also affects your productivity.

Prevention

- Get enough sleep. Most treeplanters require 9 hours of sleep each night.
- Eat a nutritious, balanced diet.
- Wash your hands and face frequently.
- Do not share beverages, food or cigarettes with other workers.

Appendix 1 – Injury Statistics

Why is treeplanting so strenuous?

Based on planting 1,600 trees per day, a treeplanter:

- 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 a heavy load of seedlings.

What types of injuries occur?

Because treeplanting injuries are so common, and because they cost millions of dollars per year, there is a great deal of information available. In an attempt to be extremely brief, here are a few statistics. All statistics are taken from the B.C. WCB 1998-2002.

Type of Accident/Injury	# WCB Claims	Percent
Fall from Same Level	261	18%
Repetitive Motion	219	15%
Struck By	195	13%
Overexertion	185	13%
Fall from Elevation	152	10%
Involuntary Motion	106	7%
Other Voluntary Motion	97	7%
Vehicle Accident	94	6%
Struck Against	70	5%
Noxious Toxins	29	2%
Caught In	19	1%
Rubber / Abraded	19	1%
Matter in Eye	9	1%
Heat / Cold	7	0%
Other	7	0%
TOTALS	1,468	100%

Notes

- Falls are the number one cause of injury. There are lots of bad things to fall on and when you are fatigued and carrying loads over rough terrain, falling is common. It's also easy to tweak your back or knees when you fall.
- Repetitive motions are second on the list and are one of the key topics of this Training Briefing.

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Appendix 1 – Injury Statistics

Type of Injury	# WCB Claims	Percent
Other Strains	447	30%
Tendonitis-Related	250	17%
Back Strains	201	14%
Cuts	184	13%
Crush / Bruise	118	8%
Dislocation / Fracture	105	7%
Scratch / Abrasion	81	6%
Other Disease	42	3%
Other Injury	31	2%
Chemical Burn	6	0%
Multiple Injury	4	0%
TOTALS	1,468	100%

Notes

The frequent falls and repetitive motions from the previous table lead to all kinds of strains and tendonitis.

Body Part Injured	# WCB Claims	Percent
Wrist / Fingers	309	21%
Knees	228	16%
Back	215	15%
Ankles / Toes	149	10%
Other Leg	99	7%
Other Arm	92	6%
Eye Injuries	80	5%
Shoulders	67	5%
Other	58	4%
Elbows	36	2%
Chest	34	2%
Neck	23	2%
Hips	22	1%
Face and Ears	17	1%
Other Trunk	16	1%
Other Head	15	1%
Body Systems	8	1%
Scalp / Skull	1	0%
TOTALS	1,468	100%

Notes

The strains, sprains and tendonitis most frequently appear in wrists/fingers, knees, backs and ankles.

Appendix 2 - Ergonomic Injuries

Repetitive Strain Injuries (R.S.I.)

The term "repetitive strain injury" refers to a group of injuries that result from performing the same physical motion over and over again. Over time, this constant, unvarying motion may cause temporary or permanent damage to the cartilage, tendons, ligaments, nerves, and muscles involved in producing the motion.

What is tendonitis?

Tendonitis is the inflammation of a tendon. When a tissue is damaged, it releases a chemical enzyme that breaks down the damaged tissues so that they can be re-built. If you sustain damage faster than the repair process can occur, many of these enzymes may be released. These enzymes may irritate the healthy tissue, causing it to release enzymes, which attack more tissue. This is inflammation. When inflammation occurs in a tendon, you have tendonitis. You can get tendonitis wherever you have a tendon that is being stressed.



How is tendonitis caused?

Treeplanters may get tendonitis from the repeated jarring motions of driving the shovel into the ground or shovel screefing.

What happens if I get tendonitis?

Your summer plans can drastically change if you get tendonitis.

- If caught early, tendonitis can be a minor setback putting you out of commission for a couple of days.
- Full-blown tendonitis could abruptly end your planting season and cause you a lot of pain.

Tendonitis is caused by your damaged body trying to heal itself – but it can't keep up with the rate of damage.

Environmental conditions associated with tendonitis.

Some conditions and practices will predispose your body to tendonitis.

- Fast ground where a planter can put a large number of trees into the ground
- Rocky or rooty soil where it can be difficult to drive your shovel into the ground or if you regularly strike buried obstacles.
- Hard packed soil or soil with high clay content where driving your shovel into the ground can be difficult.

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Appendix 2 - Ergonomic Injuries

Planting techniques and other risk factors associated with tendonitis.

How you plant each tree will affect your chance of suffering from tendonitis.

- Slamming your shovel into anything other than soft ground without using your foot is risky.
- Improper grip on the shovel handle may cause you unnecessary grief.
- Lack of physical preparation prior to the planting season may make it difficult for your body to adjust to the physical stress of planting.

Symptoms of Tendonitis

Without treatment, repetitive strain injuries may become progressively worse. In fact, untreated repetitive strain injuries may result in a complete loss of function in the affected area.

Stage	Symptoms	Treatment
Early	Initial symptoms may include: <ul style="list-style-type: none"> • Tingling • Numbness or pain in the affected area • Loss of flexibility or strength 	Greatly reduce or eliminate motions that irritate the affected area. This may include switching planting hands or taking a couple of days off. Ice can be applied, 10 minutes on, 5 minutes off. No heat.
Full-Blown	Pain with motion of the affected tendons. Point tenderness along the course of the tendon. Swelling & Redness. Crepitus - a leathery creaking sensation, palpable upon movement of the tendons.	Rest, splints. Ice can be applied, 10 minutes on, 5 minutes off. Definitely no planting.

Report potential injuries to a First Aid Attendant promptly.

Appendix 2 - Ergonomic Injuries



Switching planting hands can give your tired and injured arm a much needed break.

Do not pump yourself full of painkillers and keep planting!

Ergonomic Injury Prevention Overview

The prevention of ergonomic injuries requires a multi-faceted approach:

- Targeted pre-season physical preparation
- Proper equipment set-up
- Proper warm-up
- Proper technique
- Proper hydration
- Proper diet
- Adequate rest and other body maintenance
- Recognizing and reporting injuries

Historic Close Calls and Incidents

Incident #1:

A planter took a stick in the eye while bending over to plant a tree. Their sight was lost for several days.

Incident #2:

A planter got a small sliver in their eye causing a loss of sight that lasted 6 months.

Precaution:

Wear sunglasses, prescription glasses or safety glasses to prevent these types of events from happening. (a means to clean the glasses is recommended as they can fog up or become dirty causing reduced visibility)

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