

PREVENTING ERGONOMIC INJURIES

A HEALTH AND WELLNESS GUIDELINE

Summit 2000

Introduction

This handbook is designed to address the problems and solutions associated with ergonomic injuries. **Ergonomic injuries** are injuries that develop through inflammation of muscles, tendons, and ligaments. These tissues contribute to the coordination of movements in joints. These joints include the shoulder, elbow, wrist, hip, knee, and ankle. As much of our job in planting involves repetitive movements of these joints we are certainly susceptible to these types of injuries. These injuries can occur predominately in the wrist and lower back, but may also include the shoulder and knee regions. Because of this we should pay special attention to the signs, symptoms, and contributing factors that may lead to these injuries. The intention of this handbook is to make you aware of these factors and ensure that you retain and use the information given.

This handbook includes information on requirements our company has been asked to adhere to by the WCB and mills we have contracts with; ergonomic injury prevention and detection; nutritional information; and stretching guidelines for foreman to use in the morning meetings. Also included is a planter physical information sheet. This sheet is intended to give the foreman information on the physical condition and history of the people on their crews, as well as serving as the foundation of information from which we will be able to build a stronger program of this nature in the future. I ask that all of you read the information I put forth and sign the bottom of this information sheet stating that you have read this information. There is also space available for you to comment on; offer future advice; argue any of my points; and add knowledge you have that I may have overlooked.

There will also be an audit process in place to learn how much you are aware of ergonomic concerns. The audit will be meant as a learning tool so that we can better understand how much people within the company know about health and safety, and how much you are willing to learn about it. This program is being developed with everyone's best interest in mind. We hope that it is accepted as it is intended.

The risks of Treeplanting

We tend to praise those individuals who work through and can excel in adverse conditions. Sometimes we have to remember that tough conditions and working excessively hard can lead to health risks. We all want to set goals to motivate ourselves throughout the season. But it is important to remember that some days the block, weather, access, or ground will not be in our favour. Take these times into account and adjust your goals accordingly. Summit had long been known as a company that tries to maintain pricing consistency from day to day and contract to contract. There will always be good days that will outweigh the bad.

Here are a few examples of conditions that may cause you to adjust your personal expectations:

- Hard treated ground, and rocky ground *should* slow you down... not only should you take special care to maintain quality, but you should also take care of your joints. The wrist is especially susceptible to overstrain due to the impact with hard ground. Use

your foot to assist your shovel into the ground, probe the area prior to selecting your spot, and stop planting if you feel any pain in the wrist - report it to your foreman.

- If block access dictates that you need to walk in don't go nuts all day to make up the lost time. Not only can quality be compromised, but also you can overstretch the parameters of your body's abilities.
- Some people truly work better on wet days, but keep in mind that cold wet conditions can pose extreme stress on the joints. Because the body conserves blood to maintain vital organs in cold conditions, the extremities will be left with less circulation than usual. The joints can become more susceptible to injuries because there is less blood flow to support the movements. You should always take care to keep your extremities warm on cold days and foreman should consider making these days shorter for their crews. It will most likely make the next day more productive.
- Through block audits prior to planting the supervisors will be able to anticipate adversity that may warrant price adjustments. Just don't do anything in adverse conditions that will jeopardize your health or the integrity of your work.

I urge the foreman to read the planter information sheets once they have been completed. This should happen on the first day. The information will give you a better understanding of the people on your crew. I also suggest you use the ergo audit forms as a guide in assessing your planters technique. Not because you are responsible for it come audit time...but because it will help you solve problems before they lead to injury.

Ergonomic injuries and their prevention

At our company meeting on march 5&6 I handed out a sheet asking for one example of an injury the foreman and supervisors may have experienced in their planting career. The responses I got allowed me to conclude that there are far too many variables that contribute to ergonomic injury to list. Injuries of the wrist are common with a d-handle shovel, yet shoulder injuries may develop with a staff shovel. Rocky and hard ground can lead to tendonitis of the wrist, yet there was also incidence of it on soft ground. Due to this I won't make specific recommendations of equipment choices at this time. However, I will outline sound guidelines for lessening the chance of developing ergonomic injury, and rely on the information I gain from the *planter physical information* sheets, and *Summit injury report* forms at the end of the 2000 season. It will be mandatory that a

planter physical information sheet accompany the pay sheets, and the *Summit injury form* be attached to the standard 7a form. From this information we will develop a sound and practical guide. This season my general guidelines are as follows.

Health and safety are the foundation of preventing ergonomic injuries. Without taking care of health and safety there will obviously be a greater chance of developing any type of injury. I have outlined sound nutritional advice in the nutrition and water segments. These recommendations will greatly decrease the likelihood of injuries developing. By keeping a healthy well-rested body there is far less opportunity for problems to develop. However, all this can be lost if safety is compromised. It is very easy for people to burn the candle at both ends in regards to safety. On one end our sleep, eating and living habits can make us more tired than necessary subsequently making us sloppy in our daily tasks. This cannot only risk your health, but those around you as well. On the other end poor technique in planting and other related activities can make your sleep, eating, and living habits irrelevant.

Good technique in planting and other related tasks. The primary concerns towards ergonomic injuries centre around the wrist. With this being said we must also pay attention to other injuries that can also be season threatening. Here are a few hazards and possible preventative measures:

Avoiding wrist injuries due to general overuse.

To avoid wrist injuries

- Strengthening the wrist before the season by squeezing a racquetball or stress ball.
- Starting out slowly in the first few days (foreman 's responsibility).
- Using a light grip at on the fingers rather than a tight grip in the palm of the hand.
- choosing a shovel that is the right height (generally groin height).
- choosing a light weight shovel without compromising blade length.
- use a light tap of the shovel in rocky ground before selecting a planting spot.
- use your foot to aid in the shovel entry on hard ground.
- detecting soreness, redness, swelling, or creaking in the wrist joint
- reporting to your foreman with these symptoms as soon as they develop.
- First aid attendant taking the proper steps in diagnosing, and possibly treating the injury. Note: I am not going to go into detail, as the first aid attendant is responsible for knowing, treating, or referring for treatment such symptoms.

Avoiding shoulder injuries due to staff shovel use

- If you switch to a staff shovel because of wrist problems take it slowly at first. This allows the body to adapt to the change of responsibility in the shoulder region.
- Choose as light a shovel as possible without compromising blade length.
- Seek advice from someone who has a good amount of experience before using a staff shovel. If you thought wrist injuries were a problem, shoulder strain can cause much more of a problem once allowed to develop. Find out the right height to hold the shovel at and hole opening technique.
- Detect soreness, swelling, creaking in the shoulder joint.
- Report symptoms to foreman.
- First aid attendant takes steps to deal with the problem.

Special Note: I am not convinced that staff shovels are any better at warding off injuries than d-handle shovels. This is why I am in the process of developing a more anatomically correct handle for planting. It won't be ready for general use until the 2001 season so I won't say too much more on the matter.

Avoiding back injuries due to overstrain

To avoid back injuries:

- Make sure the weight of the planting bags is well distributed between shoulder, breast, and hip straps.
- Don't carry bag-ups that make you feel like your knees are going to give out. Use common sense on what you are able to manage. Although I've been known to take this to extremes, light bag-ups help you last the day, shift and season, but this is personal choice...just don't kill yourself, especially early in the season.
- Foreman should be aware of bag position on new planters and experienced planters they have not worked with before. Curb the bad habits of your planters early in the season.
- Use a slight knee bend when bending down to plant the tree. Don't just bend at the hips, it puts far too

much stress not only on the lower back, but also the hamstrings. By using a knee bend the responsibility falls on three joints (the hip, knee, and ankle), rather than putting the responsibility solely on the hips. This is a coordination of movement that dissipates the load responsibility of the movement. Good athletes use this principle to generate greater power. In planting we can use it to ward off overstrain injuries.

- Use an insole with good arch support. This will put your ankle in its neutral position and creates a more linear path of force from the ground to your spine.
- Make sure you have good footing on the block. Treated ground and slushy ground can make walking hazardous. With a heavy load on your back it can easily spell the end of your season.

Back injuries due to poor lifting techniques

This topic covers everything from putting your bags on to camp set-up. Poor lifting techniques are often overlooked when there is urgency to our tasks. The following guidelines will hopefully help you in making a conscious effort to take care when lifting.

- As stated above - don't put the stress of your movement solely on your hips. Lift with the coordination of the shoulder, hip, knee, and ankle joints.
- Keep your chest up when initiating the lift.
- bend at the knees and the hips.
- lift by bringing your hips forward and driving up with your heels, not on your toes.
- If you sense that it is too heavy an object get someone to help you with it.

These are a few basic things to keep in mind. As I stated at the beginning health and safety are the foundation of warding off ergonomic injuries. By taking care of your body and being safe you greatly diminish the opportunity for injuries to occur. It is the responsibility of the foreman to have your crew's health, safety, and technique in mind when any task is being performed. We ask a great deal of our planters on and off the block, so it is our responsibility to ensure that they are doing things safely.

Water is very important

Water is an essential substance that makes up about 60 to 75% of your body weight. Water stabilizes body temperature, carries nutrients to and waste away from cells, and is needed in cell function. Water does not provide energy, but without it energy cannot be released over a long duration. You can survive only a few days without water, although you can live weeks without food. It is our responsibility as a company to ensure that there is an abundance of safe, clean drinking water available at all times.

Thirst is not the best indicator for water needs. The simplest way to tell if you are adequately replacing what you sweat out is to check the colour and quantity of your urine. A well hydrated body will usually release clear urine. However, your urine may be dark if you are taking vitamin supplements (especially B-12 and C); in that case, volume is a better indicator than colour is. You may not *feel* thirsty, yet your body may need fluids. Take special note of this on cold days when your thirst does not come as readily. The amount you drink is very dependent on how large you are, and how much your stomach can handle. You should try to drink at least 500ml of fluids before you leave for work in the morning. The kidneys need time to start processing fluids before the exertion starts... after that, you should try to drink 250-500ml with every bag-up. Once again this is very much dependent on your size. As a guide no planter should leave for the block without at least 4 litres of fluids for the workday. 3/4 of this should be water and the rest can be a fruit juice, or sport drink. Try to stay away from too much pop, or sugar juices. It is also important to continue to drink in the evening as well. If you are going to drink beer or other alcohol make sure you have plenty of water with it. It may not feel like a big deal at the time, but it will catch up with you over a long season, and we want to take advantage of every day we can to make money...

Watery foods such as lettuce, cucumber, tomatoes, oranges, and watermelons will also aid in the restoration of fluids in the system. Summit will continue to maintain a healthy quantity of these fresh foods in order for you to do this- so take advantage of what is available.

For those worried about sodium loss, salt depletion throughout the day is unlikely. The kidneys and sweat glands tend to conserve sodium when it is short supply. At the beginning of the summer your sweat will be far saltier than it will be at the end of summer. As you adjust to working in the heat, you sweat less salt. Sodium losses can simply be replaced when you eat supper at night. Your diet should simply contain enough to replenish losses if you eat a balanced diet.

This is a fairly straightforward topic; just remember that thirst alone is not a prime indicator for hydration requirements. If you don't have to whizz, you should think about drinking more. Just always make sure you have enough on hand.

Note to the foreman: It is a good idea to get yourself a 10 litre foldable plastic jug for your crew to access. It could literally save lives on a hot day.

Nutrition is very important

Three basic keys to healthful eating:

1. **Variety.** There is no magic food. Different foods offer different nutrients. You will thrive best by eating a wholesome variety of foods.
2. **Moderation.** Junk food can fit into a well balanced diet. However, too many poor nutrients can accumulate into developing a junky body. You won't have the energy, and the likelihood of being constantly sick is abundant.
3. **Wholesomeness.** Choose natural or lightly processed foods as often as possible. Natural foods usually have more nutritional value and fewer questionable additives.

The nutrients of good health

Carbohydrates are sugars and starches that fuel your muscles and brain. They are the primary energy source when you are working on fast ground. 60% of your nutrients should come from carbs found in fruits, vegetables, breads, and grains.

Fats are a source of stored energy that will be burned on slower ground over long duration. It is also the first source tapped when you are working at a very fast rate.

Because it is the easiest for the body to break down the body will choose it first.

Protein is essential for building and repairing muscles, red blood cells, and other tissues. Protein can be used as a source of fuels if carbs storage is depleted, but you don't want to let yourself get to that point.

Vitamins regulate chemical reactions within the body. The body does not manufacture vitamins, so you have to obtain them through your diet. Vitamins are not a source of energy.

Minerals do not provide energy either, but they are required to regulate body processes. For example iron in red blood cells transport oxygen. Without this the body could obviously not function.

Water is essential for every nature process of the body. All the systems of the body, and the cells that compose them are reliant on water to function.

Since this can be such a vast topic I have found it necessary to condense to a digestible dose for this article. There will be many of you who will have a great deal more to share with those around you in regards to diet, and this is good ... as long as you have your facts straight. My main goal is to illustrate the *basic* reasons why your diet will directly affect the longevity and effectiveness of your season. With this being said here are a few tips that will help you make sound dietary choices this planting season.

Increase your potassium by eating wholesome foods such as fruits, vegetables, whole grains and cereals, beans, nuts, and protein foods. Refined and processed foods are weak sources of potassium. Raw or steamed vegetables retain far more potassium than boiled veggies. Choose potatoes over pasta and rice. Drink natural fruit juices rather than sugar juices or pop. You can lose a great deal of potassium in sweat, yet it essential in the lubrication of joints and the flow of energy and toxins in the body. Not having a good

supply of potassium in the body can lead to over-use injuries in the joints, and cramping in the muscles.

Quick and slow carbohydrates are categorized by a food's ability to contribute glucose to the blood stream. Foods can be ranked along something called the *glycemic index*. High index carbs enter the blood stream quickly, and are best eaten during, or after exercise. Low to moderate index carbs enter the system slowly and should be eaten before exercise as they provide sustainable energy. Here are a few basic foods in each category:

High: Glucose, Gatorade, baked potato, honey, watermelon, breads, mars bar, table sugar, raisins.

Moderate: Boiled potato, rice, banana, orange, spaghetti,

Low: Apple, Power Bar, milk, apricots, fructose.

Some people believe that by consuming a high amount of low index carbs that you don't have to consume the others to sustain energy. However, considering the length of our workdays and the effort levels we can obtain, I suggest a balance of all three types of carbs throughout the day. Remember, it is not bad to have the odd baked good or chocolate bar, but temper it with more wholesome carbs as well.

The straight story on supplements: Don't buy supplements that have excessive quantities of vitamins and minerals (100% daily doses are sufficient). High doses of one vitamin or mineral can offset the usefulness of another. Always try to store your vitamins in a cool place. This increases the longevity of the product. Don't bother with A natural vitamins@ they tend to be more expensive and offer no benefit. If you don't eat red meat I suggest an iron supplement, or eating foods like raisins, apricots, spinach, tofu, or a pint of *Guinness*. However, even these foods must be eaten in large quantities to match the iron content of red meat, so you should look into a supplement that has iron. Iron content is vital in the transport of oxygen in red blood cells, just don't go overboard, too much iron can lead to heart disease. Finally, to maximize absorption take your vitamins with a meal.

Don't bother with performance drinks other than the Gatorade that the company provides. Most of them carry empty promises unless you're a high level athlete, and they are expensive. I had someone tell me last year that they were taking creatine to help with energy. Creatine is a naturally occurring substance that is used by the body in maximal intensity excersion. It works as an energy source in the first 6-8 seconds. We don't do this on the block very often... The track sprinters and football players I train benefit from this supplement a great deal. I assure you that it will do absolutely nothing for you.

Don't skip breakfast! I'm not going to go too deeply into this, but here are a few reasons why eating breakfast is a good idea:

- Getting those low index carbs in that I spoke of above.
- Not able to concentrate on your job as effectively.
- Becoming irritable and short tempered
- Not being able to sustain energy late into the day.
- Starts the metabolism rolling.
- Miss out on our cooks great creations

If you don't have an appetite in the morning it may be because you ate a bunch of food before you went to bed. Try not to snack too late into the night. Not only will it ruin your morning appetite, but it can also cause you to have trouble sleeping.

On the following pages are a few more good pieces of information that will help you understand the importance of good nutrition. As you will be able to see balance variety, moderation, and wholesomeness are the foundation of creating the energy you need to have a long and successful season. This is not rocket science, and I hope that the information I have provided will not only help you in planting, but also throughout your life.

Stretching

Here are the morning stretching exercises many of the foremen requested from me at the meeting in March. I hope this becomes a standard routine for all crews.

Remember that cold muscles should not be stretched with static (holding) stretches. The program I have outlined is solely a dynamic (movement) stretching routine. Instruct your planters to use the static stretches after their first bag-up. This will ensure that the muscles are warm, and no undue tearing of the muscle tissue can take place.

The Morning Routine

Neck rotations. This exercise is simply done by rotating the neck in a four-corner fashion. Front, left side, back, and right side. This should be done for five rotations and repeated in the opposite direction.

Shoulder shugs. Shrug the shoulders up. Rotate to the front, drop shoulders down, and stretch back. Again this rotation movement can be done five times and reversed for another five.

Arm swings. Hold your arms out stretched laterally to the sides. Bring your arms in and allow them to swing past each other as they cross your chest. This should be a free and easy movement as you then swing your arms back and allow them to stretch back. Ten times will do.

Arm rotations. Simply swing the arms in big circles at your side. Do it first clockwise then counter clockwise.

Trunk rotations. Bend at the hips forward, rotate to the left side, arch back, and then rotate to the right side. Do this in a circular motion for five reps, and repeat in the opposite direction.

Leg Swings. Have everyone stand in a circle with their hands on the shoulders of the people next to them. Everyone swings their left leg in a sweeping motion across their body and back away from their body. Try to synchronize this somehow so that people are not knocking ankles with each other. Repeat with other leg ten times each.

Ankle rotations. While still in the circle have everyone lift their leg and simply rotate their ankles in each direction. Five times each.

Jumping jacks. I think we all know what these are. Don't worry too much about the number of reps; just spell something out with each repetition.

This is a good way to get the joints limber, and the blood flowing prior to putting the bags on. This can greatly aid in injury prevention throughout the season. The body will at least get a head start before you start pounding the trees in and try to kill it.

Static stretching can be done throughout the day once you get the first bag in. Stretching cold muscles is like stretching a frozen elastic band; the fibres can tear and weaken if stretched when cold. So make sure the blood has been flowing for a while before doing the ole' quad stretch...

Standards and regulations

WCB Requirements

Here are the requirements listed in the Occupational Health and Safety Regulations. They are intended to set a standard for eliminating or minimizing the risk of ergonomic injuries to our workers.

Employers and ergonomics

- The employer is responsible to identify, assess and eliminate or if that is not possible, minimize the risk of injury to the worker.
- Employers must consult with the worker safety representative (if any) when identifying, assessing, and controlling risk factors, evaluating controls and preparing and providing ergonomic education.
- Employers must provide education to workers who may be exposed to risk of ergo injuries on the signs and symptoms, their potential health effects and risk identification related to the work.
- Employers must ensure that planters are adequately trained.
- Provide adequate first aid facilities and services for ergo injury treatment.
- As part of the worker education about ergonomics, workers should be able to answer the following questions:
 - What are some of the early signs and symptoms of ergo injury?
 - Who would you report these signs and symptoms to?
 - What can happen if you ignore early signs and symptoms?
 - What are some risk factors in your job that could lead to ergo injury?
- These are the basic guidelines the WCB has put forth for us to adhere to. These are the obvious concerns, but they do not take into account the contributing factors that may lead to ergo injuries developing.