

# TECHNICAL NOTE

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## IMPROVING WORKER SUSTAINABILITY WITH A FOREST HARNESS

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*Photo 1 - Basic "Pinemate"  
forest harness*

*Photo 2 - Thinning option*

*Photo 3 - Planting option*

*Photo 4 - Portable hydration*

## Summary

Recent work by Liro Limited's Human Factors Group has highlighted the benefit of fluid and food intake in reducing forest worker fatigue. In the forest environment, the problem has often been how to transport sufficient levels of fluid for the day, in addition to the normal range of equipment required to carry out each operation. In a move to improve the sustainability of his crew over the workday, the concept of regular food/fluid intake was picked up by a silviculture contractor who, with the help of his crew, set about solving the problem of food/fluid/equipment transportation. The forest harness is the end result of much trial and on-the-job testing.

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# Multi-Functional

The "PINEMATE" FOREST HARNESS (patent pending) was developed over a period of 10 years by the contractor, to provide a solution to the ergonomic problem of carrying around operational gear and food/fluid to aid in reducing the daily fatigue levels of his crew. To ensure the harness would be able to be used year round, it was designed as a modular multi-task harness, and is suited to the silvicultural tasks of planting, pruning and thinning. This allows full benefit to be obtained from the harness throughout the entire range of operations carried out in a silvicultural year.

Conventional operational systems force the user to carry all their equipment around the waist, and because space is often limited, the first things to get discarded are often food and water. This problem is overcome by the harness as food and water are positioned in a place where it will not hinder the user.

## Features

- Comfortable, durable backpack harness design
- Quick and easy access to 3.2 litres of fluid - no need to stop between trees to rehydrate
- Thermal lined fluid compartment to prevent the fluid from heating
- Detachable food pouch to take home and refill each night
- Food carried with user at all times - no need to walk out for smoko
- Cost effective through multiple function design
- In-built HI-VIS - satisfies hi-vis requirement
- First-aid compartment - containing 2 vacuum packed wound dressings, splinter removers, eyewash, mirror for removing objects from eyes, wound tape
- Better (more ergonomic) displacement of weight evenly over the body
- Fully adjustable harness system adaptable to different tasks and body shapes
- Durable materials - won't get caught on blackberry
- Easily cleaned (to retain hi-vis qualities)

# Increased Productivity

The backpack design removes the weight of equipment such as a planting box and two-can from the waist and re-distributes it over the back and shoulders. Members of the contractor's silvicultural crew who have tested the harness in both pruning and planting operations for the past 12 months have reported feeling less fatigued at the end of the day and higher levels of energy at weekends for their sports. This may be due to the regular food and fluid intake made possible by the harness and the reduced loading on the body through the redistributed weight. The benefit of this flowed on to the contractor, who maintained daily production records which showed improved levels of production in both pruning and planting conditions. Given that the effective life of the harness is estimated to be approximately 3 years, the initial investment should soon be recovered by the improvement in production.

## Purpose-Built Accessories

- Redesigned planting frame ; lighter, sturdier, faster box replacement, side tensioning straps to reduce box sway
- Thinning belt: quick release system, set up for left or right handed users
- Hammer/wedge pouch: the hammer position prevents loss of the plug spanner
- Fire extinguisher pouch: Waterproof and hi-vis

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