

BATTERY POWERED CHAINSAWS IN WASTE THINNING

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Meeting Date: 07/10/2022



1

BACKGROUND

- The issue that this project proposes to address is:
 - Reducing the carbon footprint of silvicultural operations by replacing petrol powered chainsaws with battery powered equivalents in waste thinning.
 - Identify battery powered configurations and determine potential use.
 - Compare battery chainsaw performance against petrol powered equivalents.
 - Analyse the risks associated with hazards of using battery and petrol saws.
 - Develop operating procedures that maximise benefits of battery technology.
 - Quantify the health advantages of eliminating CO from the work environment.

2

KEY MILESTONES AND TIMING

- **Key milestones and associated high level timing planned.**
 - **Research previous experience with battery powered chainsaws.**
 - **Milestone 1 - 10th September 2022.**
 - **Identify Stakeholders and test concepts, (Field trials).**
 - **Milestone 2 - 30th September 2022.**
 - **Decide on best options for future trials with battery saws in thinning.**
 - **Milestone 3 – 31st October 2022.**
 - **Measure performance of existing, petrol powered operation.**
 - **Milestone 4 – 15th December 2022.**
 - **Trial different operating techniques & types of battery powered saws.**
 - **Milestone 5 – 31st January 2023.**
 - **Project Completion.**
 - **Milestone 6 – 31st March 2023.**

3

PROGRESS REPORT

- **The approach taken to meet the challenge has been to:**
 - **Carry out a literature review of the use of battery powered chainsaws.**
 - **Prepare a Workplan to define the objectives & guide the research work.**
 - **Contact equipment suppliers and discuss options for trialling saws.**
 - **Set up a one day workshop with an experienced waste thinning crew.**

4

PROJECT HIGHLIGHTS

- A successful field workshop was held on 20th of September.



5

PLANNED WORK

- Planned work that requires approval to proceed.
 - Develop technique for using Battery powered chainsaws for thinning.
 - Establish run times for battery powered chainsaws, (similar in size to petrol saws).
 - Investigate methods of maintaining the supply of charged batteries for the saws.
 - Research options and then trial different brands of battery powered chainsaws.
 - Experiment with different on-site charging systems for the batteries.
 - Trial organic based chain lubricating oil and different chain types.
 - Compare the performance of battery powered saws with their petrol equivalents.

6

WHERE TO FROM HERE?

- The University of Canterbury School of Forestry have started a similar project, with parallel objectives, looking in to the use of battery powered chainsaws in waste thinning.
- FGR have approached the University with a proposal to amalgamate the two programs and combine resources.
- A revised workplan is being prepared that will involve static testing for vibration, noise levels and weight, and field testing of battery life, productivity, operating techniques & workload.

7

IMPLICATIONS FOR INDUSTRY

- When the project is completed and significant milestones have been achieved, the implications for industry is that changes may be necessary for successful implementation, including:
 - Recognising the health benefits of minimising exposure to carbon monoxide, fossil fuels and high noise levels.
 - Re-defining operating techniques to allow for productivity losses due to battery run time constraints and the supply of replacement batteries.
 - Accepting increased costs to facilitate the lower carbon footprint of waste thinning using manual tree felling techniques.

8

INVOLVEMENT FROM INDUSTRY PARTNERS

- **Successful implementation of this project will rely upon:**
 - **Buy in from equipment suppliers to supply chainsaws and charging facilities that will share the risk of experimentation and minimise the inconvenience to participants.**
 - **Support from Scion to collect and analyse data on the exposure to harm in traditional waste thinning operations.**
 - **Involvement of the University of Canterbury School of Forestry in the data collection process, analysis of productivity and reporting of outcomes.**

9

Precision Silviculture Partnership

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10