Precision Silviculture Partnership

4.5 Forest System Design

4.6 Silvicultural Pre-Selection for Pruning and Thinning

Presenter: Yvette Dickinson

Meeting Date:7 October 2022

FOREST GROWERS RESEARCH

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BACKGROUND

- Pruning & thinning are critical to profitability
- Mechanisation/automation and increased data across the rotation (or multiple rotations) provides an opportunity for improved:
  - Monitoring and adaptive management
  - Informing projections of likely outcomes
- 4.5: Forest design to facilitate mechanisation & automation
- 4.6: Which trees to select to optimize outcomes; &, develop tools to assist selection of trees by crews implementing treatments.

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BACKGROUND

- Draft workplan for 4.5 and 4.6:

Activity	Milestone	Final Budget 2022/23	Possible yr 2	Possible yr 3	Possible yr 4
4.5 Forest System Design	4.5.1 Trials of mechanised felling to waste and commercial thinning have compared tree selection and out row thinning systems	$100,000			
	4.5.2 Analysis of tree crop damage, ground disturbance and system productivity has been completed		$65,000		
	4.5.3 Forest system design to facilitate both mechanised thin to waste and commercial thinning on steep land using cable tethering systems has been completed.		$65,000		
4.6 Silvicultural Pre Selection for Pruning and Thinning	4.6.1 Technology review of the state of automated tree selection for pruning and thinning is completed.	$50,000			
	4.6.2 Selection parameters for stem selection have been confirmed and remote sensing data requirements have been developed.	$25,000			
	4.6.3 Field data collection trials are completed and stem selection algorithms have been tested and refined to proof of concept.	$130,000	$130,000		
	4.6.3.1 A commercialisation plan, incorporating KPI's to be monitored and reported quarterly, is developed and approved by the PGP.				
	4.6.4 Alpha prototype of software tool to deploy stem selection to device to assist operator has been developed and tested.		$65,000	$130,000	
	4.6.5 Beta prototype construction and field testing is completed.			$130,000	$65,000
	Total$	$305,000	$325,000	$260,000	$65,000

PLANNED WORK, KEY MILESTONES AND TIMING

- Review of existing technologies to assist tree selection (4.6.1 in draft workplan)
  - Inform detailed workplan development
  - Before end of FY
  - $50K
- Co-develop detailed workplans for 4.5 and 4.6
  - Working group of industry stakeholders and researchers
  - Initial meeting before end calendar year.
  - Workplan by end Q3.

PLANNED WORK, KEY MILESTONES AND TIMING

- Real-time monitoring of thinning for quality assurance
  - Workplan developed by Dave Herries, Interpine

INVOLVEMENT FROM INDUSTRY PARTNERS

- Recommend individuals to join working group
  - Contribute to development and guide implementation of workplan

Precision Silviculture Partnership

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