Logging Innovations

Steep Slope Harvesting Technologies

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Achievements

In the past 2 years Kelly Logging has:

- Minimised manual felling and breaking out on slopes up to 50°
- Achieved extended periods of total mechanisation
- Increased daily log production by 25% in some harvest areas
Initial Concept

- To provide employees with a safer working environment
- 2007 approached Trinder with concept of bolting a winch to a digger
- 150m of 3/4" rope with 10 tonne line pull
- Develop concept over 12 months with significant change along the way
- 2009 purchased Hitachi ZX280

P1 Design & Development

- Hitachi ZX 280 high and wide
- Purpose built winch fully integrated with track drive system.
- Rear mounted winch (down hill side).
- 300m x 7/8" swaged rope
- Touch screen display to alter winch parameters
- Patent application lodged 2010
P1 Performance

- Testing began May 2009
- 4500hrs completed to date
- Machine operates the same as any standard excavator
- Productivity gains
- Modifications made include:
  1. Reduced counterweight
  2. Add rope feed out system
  3. Winch system operating mods

P1 Limitations & Improvements

- No secondary braking device
- New winch design required
- More rope required
- Issues with over heating
- Lack of tractive power
P2 Design & Development

- Hitachi ZX 400
- Front mount winch (top side)
- 380m x 7/8” swaged rope
- Purpose built blade
- 45% increase in power to weight ratio
- Modifications include:
  1. Extra high and wide chassis
  2. Increased oil capacity
  3. Increased fuel capacity

Where to from here

- Confirm P2 specs for commercial model
- Adoption of Best Practice Guidelines
- Continue to collect slope and soil data
- FFR/Scion productivity studies
- Develop commercialization plan