

Mechanical Directional Felling and Log Manufacturing Quality Control

- Line pulling
- Jacking

Mechanical Directional Felling

What are the uses/applications?

- Reduce breakage in high value old growth and second growth timber
- Felling around streams, riparian areas and unit boundaries
- Felling around structures such as bridges, homes and power lines
- Protection of large residual trees and small understory trees



Mechanical Directional Felling Line Pulling

- Single-drum winch or yarder
- Crew of 3 to 4 workers
- Road above unit is preferred

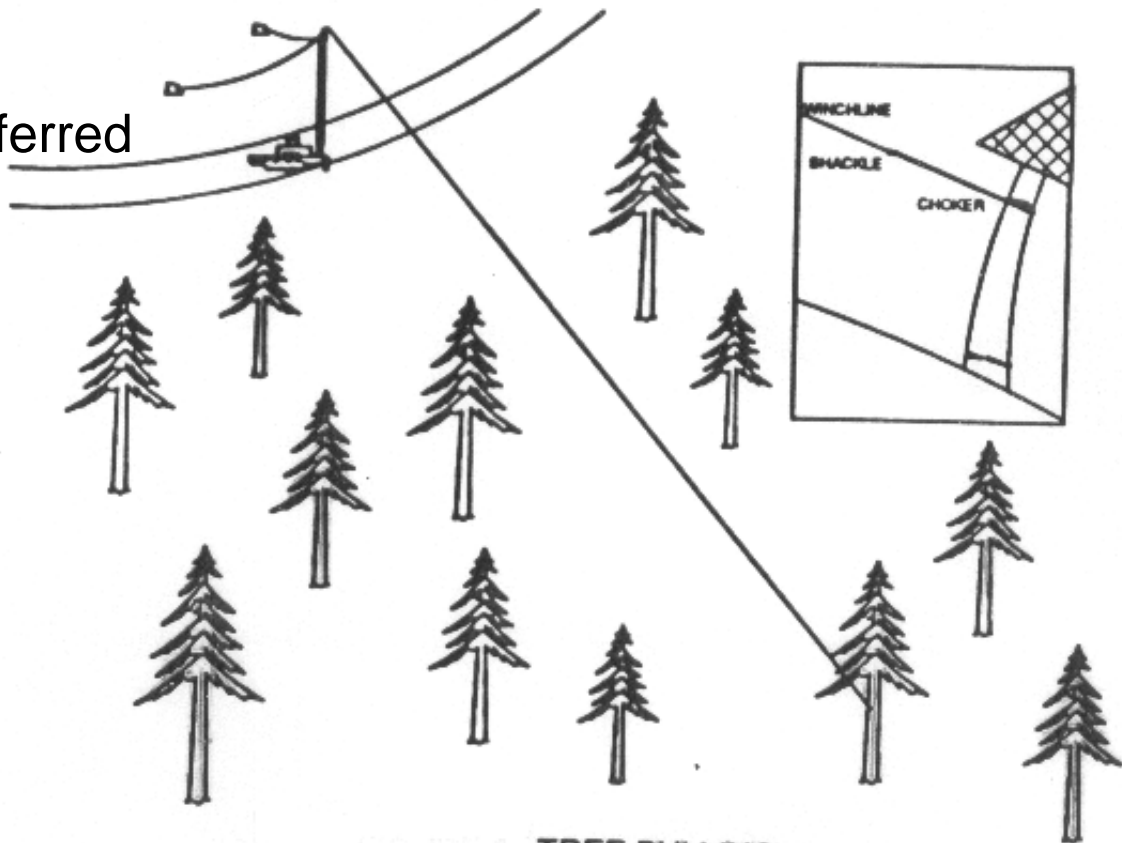
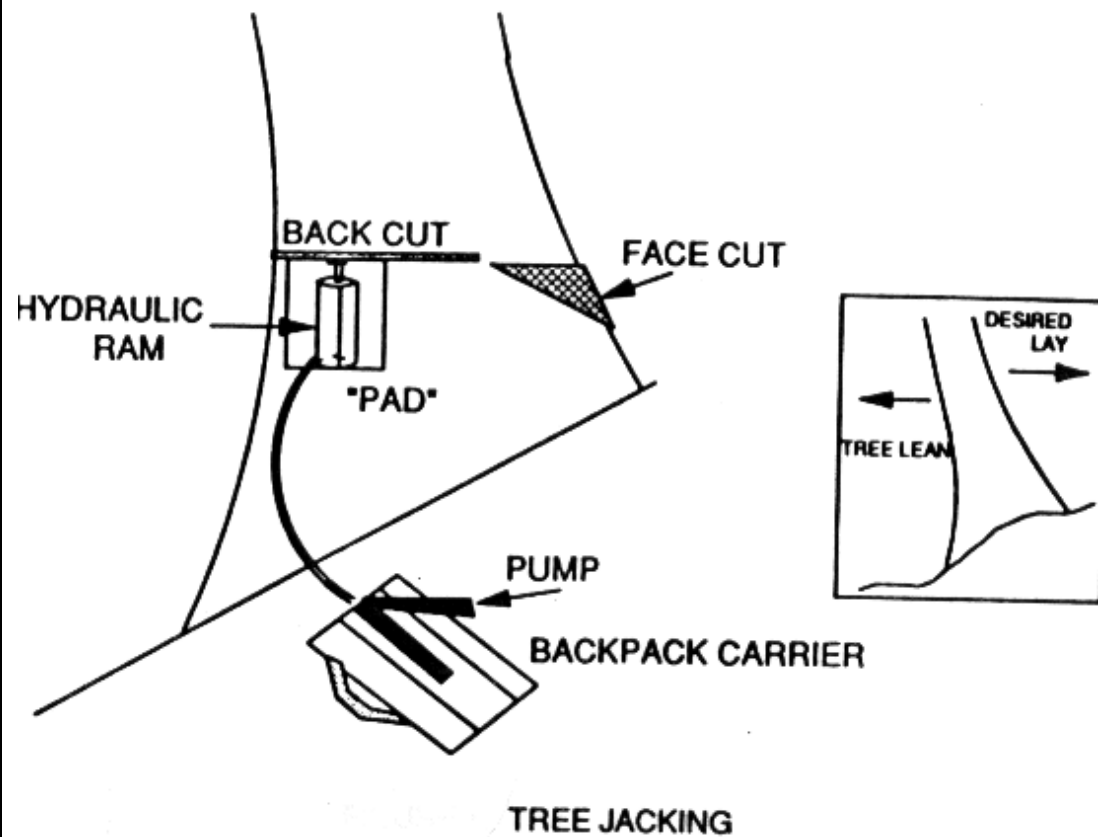


FIGURE 2. TREE PULLING

Mechanical Directional Felling Jacking



- Early work (1973) with Dellwood Timber Tipper – Weyerhaeuser, North Bend & Owatonna Tool Co
- 2, 55 ton rams
- Silvey Precision Chain Grinder Co. – Eagle Pt., Oregon
- 10 to 60 ton rams
- Tree lean & soft wood limitations



Mechanical Directional Felling

Advantages

- Wood volume & value increase
- Improved worker safety
- Improved yarding productivity
- Less “yum” yarding
- RMA protection and less clean-up cost

Disadvantages

- Requires additional equipment & experienced workers
- Additional planning & monitoring
- Bucking trees in an uphill lay can be slow & more dangerous
- Higher felling cost

Quality Control in the Felling and Tree Processing Operation

The bulk of the value lost in all harvesting operations occurs during felling and tree processing

- Small individual log gains often translate to significant harvest unit level and increased annual profits
- Better wood utilization extends the timber resource
- Often it doesn't take much time or money to identify and make improvements

Where are the opportunities for gains (increased tree volume and value recovery)?

Felling

- Stump height
- Felling practices (e.g. stump pull)
- Tree breakage

Tree Processing

- Log measuring
- Bucking practices (e.g. chainsaw bar length; splits/slabs)
- Identifying & bucking-out tree defects
- Clean limbing

Where are the opportunities for gains (increased tree volume and value recovery)?

Optimal tree bucking decisions and Wood Utilization Audits

- Decision variables include log quality grades, different purchasers, transportation cost
- Consider cutter decisions and loader/sort yard operation decisions
- Wood utilization audit examples of 10-15% value recovery



**End of PowerPoint Presentation on
Mechanical Directional Felling and
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