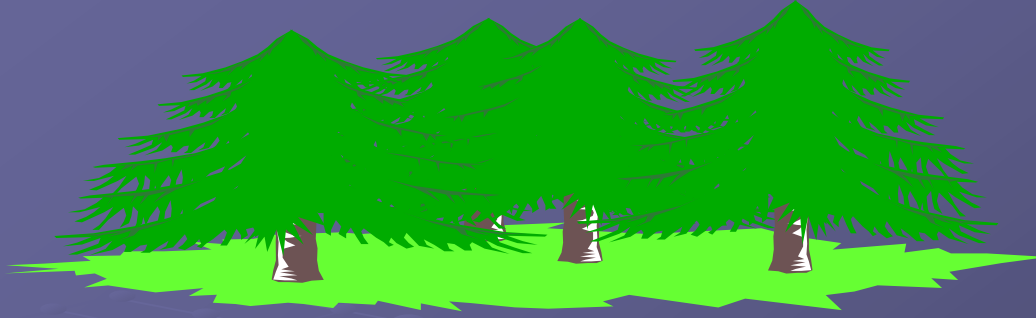




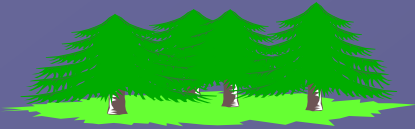
SA Forestry Contractors Association

FOCUS 2013

Pietermaritzburg

MECHANISED LAND PREPARATION **[silviculture] IN SOUTH AFRICA**

JAAP STEENKAMP



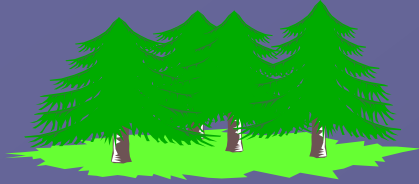
Land preparation SA

“If you keep on doing what you are doing you will keep on getting what you’ve got”

...a long status quo has changed....and it required fresh and innovative thinking.

Modernization / Mechanization

Designing the (moving) goalposts....any design will most probably change a number of times!

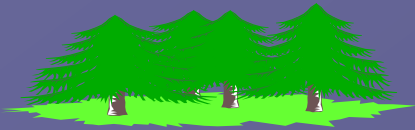


.... Change

What has caused forestry operations to change? (drivers of change)

FROM  TO

- Macro Economic pressure? (2008 to current)
- Labour? (safety, availability, productivity, cost, legislation, perceived decent work, forestry work environment)
- Technology? (availability, advantages, cost)



Operational change

Critical: Harvesting/Silviculture interface (cost implication)

Slash
management

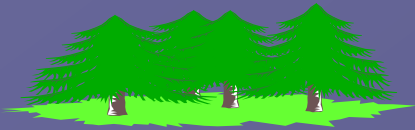
- Burning
- Mulching
- De-stumping
- (For access and facilitating pitting)

Pitting & Planting

- Pitting
- Gel / water application
- Fertilizer
- Planting

Weeding

- Mechanical
- Chemical



Pictorial recent history of Silviculture mechanization

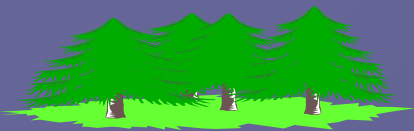
Stump & Slash management



AHWI RT400



GEHL with EDGE mulching
attachment

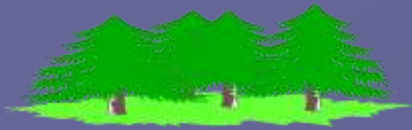


Pitting



Landini, coulter & angled ripper

MULTIPIT All Terrain (MPAT)



Pitting



Potter / Pitbull





Pitting



JD ProPit (twin head)



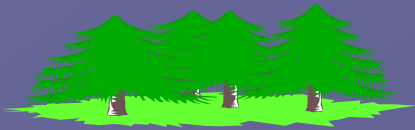
MPAT on slope in brush



Road legal with 450mm ground clearance



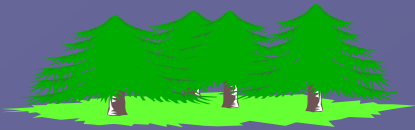
MULTIPIT ProPit (CLAAS)



Semi-mechanised planting

Tractor / trailer (pneumatic and hydraulic) semi-mechanized planting
Six rows at a time. Self levelling support boom.



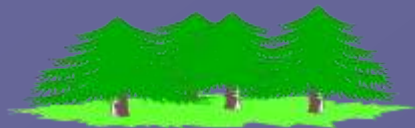


MULTIPLANT Carrier.

Pit, plant, gel and fertilize

Two heads, variable spacing, fuel efficient, excellent manoeuvrability, slopes to 55%, high stability, ergonomic design, one man operation.





Weeding



Self levelling boom sprayer



Quad sprayer

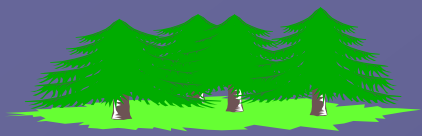
Also:

Boom-less sprayers

Heavy duty slasher / brush cutters

Protection (fire fighting)

Steam technology??



Modernization Mix

Mechanical



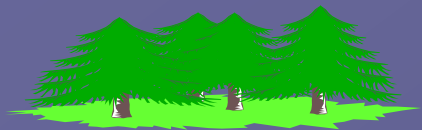
PEOPLE



Electronics

Hydraulics

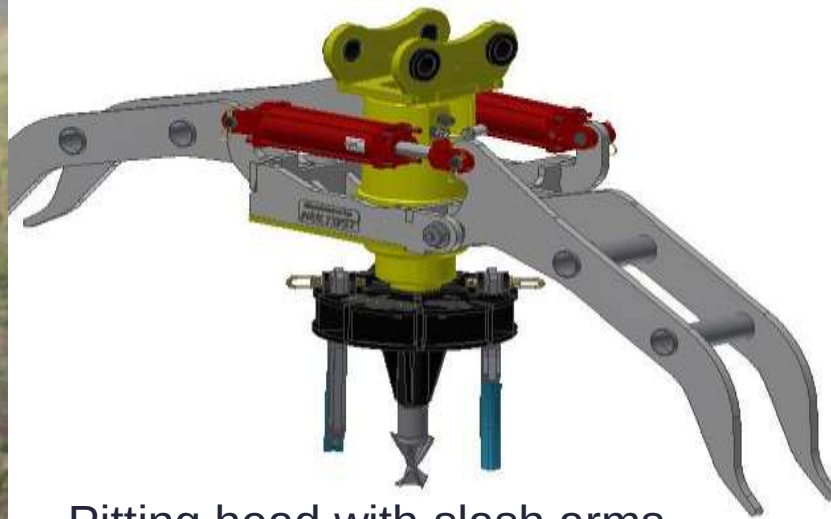




R & D



Tung-chip hard facing



Pitting head with slash arms



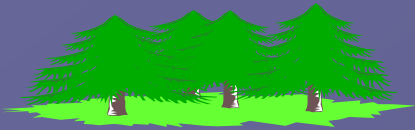
Replaceable tip tine



Coney-cutter

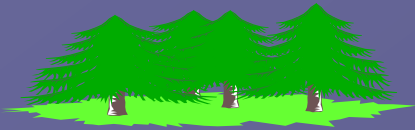


Stump Drill



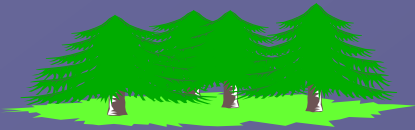
Silviculture (and
protection)
modernization is
really exciting!





COSTS

- A change from labour to capital
- A significant increase in Fixed Costs (FC) due to depreciation and interest (or fixed)
- Requirements determine costs: the required level of supervision, enclosed a/c cab or not, quality specs.
- Equipment efficiency: match between carrier and attachment, correct application.
- Performance output versus energy input? (Green)
- Productivity and utilization: the dilution of fixed cost.
- VOLUME SENSITIVITY - availability of work / standing costs
- Apples and apples cost: Direct costs only (VC)
- Level of OH costs (FC)



Conclusion

- Modernization / mechanization is happening!
- Lots of trial and error to find BOP
- Output sensitive operations (High FC=leverage)
- Requires intensified grower management (pre-planning – lack of capacity: > field; < paper!)
- Training at the Grower / Contractor interface for a mutual understanding of new environment.
- Significant equipment R&D required: an exciting challenge!

Thank you!!