

# AMAHLATHI ETHU TRADING



## Advanced Weeding With The Troner Tractor Sprayer

Presented by : Mbhekiseni Nsele

18 October 2023

# BACKGROUND

1

Modernization of operations lead to different approach to silviculture operations.

3

Re alignment of operations to modernization strategy.

2

Site preparation, planting , pre and post canopy operations needed change

# Modernization Journey



# Troner Sprayer

- Tractor drawn boom sprayer with adjustable boom.
- 2300 Litre tank
- 18 metre wide boom – swath width may depend on nozzles used
- GVM – 4500kg and Tare – 1700kg
- Boom with nozzles – 36 and self levelling mechanism
- Can be hydraulic or PTO driven
- Adjustable pressure to mix herbicide
- Separate 30 Litre herbicide mixing container



# OPERATION



Currently using a Landini landpower 125 (86Kw) and Kubota M9540 (70,8kw)

# COMPUTER AND GPS SYSTEM

- Travelling speed
- Litres of water to be used per hectare
- Litres of water used
- Pressure used to apply herbicide & water
- Boom/ nozzle switches
- Hectares sprayed
- Where herbicide has been sprayed – turns nozzles off automatically
- Where boom could not spray herbicide
- Nozzle type



# CURRENT OPERATION

- 9 hour single shift
- Use the AVI 110-025 nozzle – air induction to minimize drift
- Only used for full cover spray – TUP, Pre- plant and Selective herbicide spray



# IMPLEMENTATION AND EFFICIENCY



Mixing tank



2 week old coppice

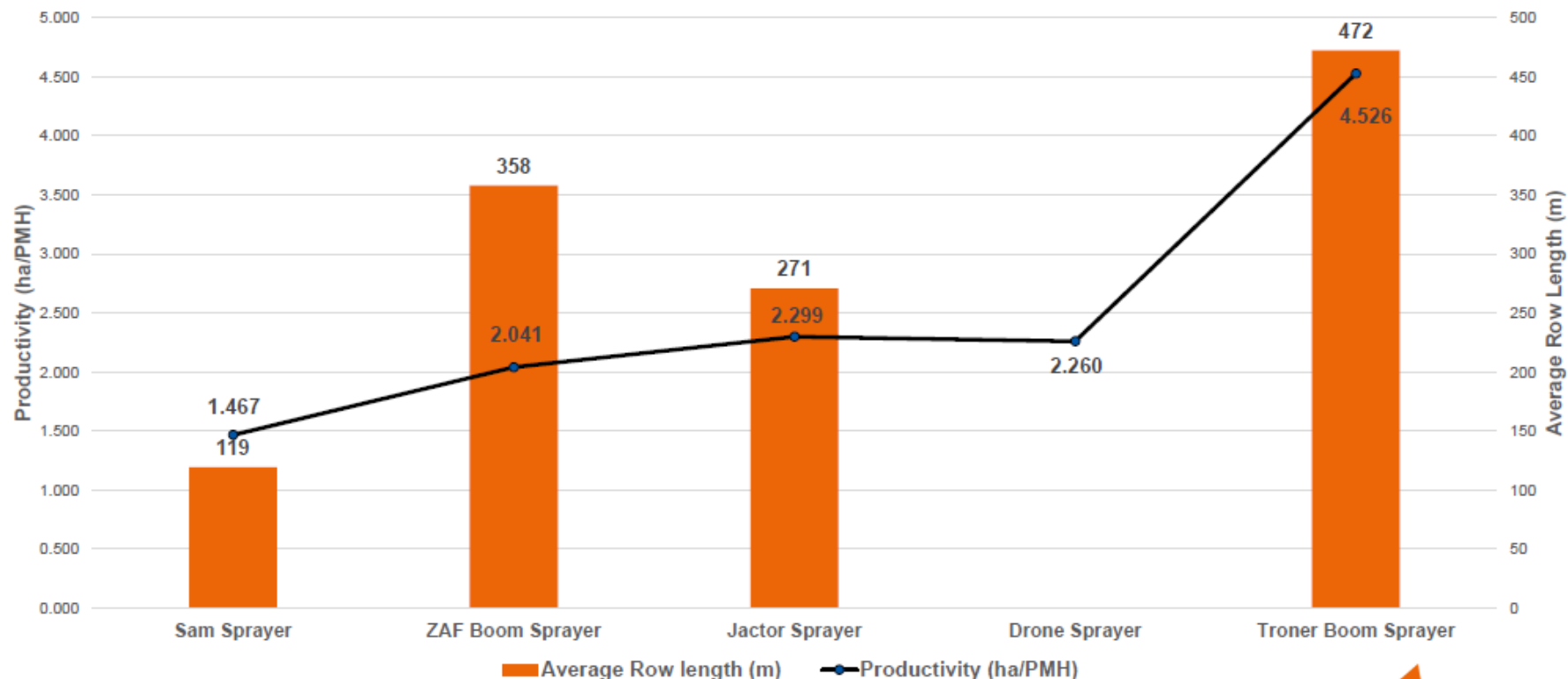




## Productivity results

	Study 1	Study 2	All
Total study time (hr)	5.0	2.5	7.5
Total delay time (hr)	1.6	1.0	2.7
Productive time (hr)	3.4	1.5	4.9
Average row length (m)	602	295	472
Area (ha)	16.254	5.834	22.088
Average spray and move time (min)	10.422	5.780	8.458
Average spray and move speed (m/min)	59.2	49.3	55.0
Productivity (ha/PMH)	4.797	3.910	4.526
Productivity (hr/ha)	0.208 (12.48 min)	0.256 (15.36 min)	0.221 (13.26 min)
Productivity per shift (ha/ 7 hr shift)	33.576	27.371	31.679

# Productivity comparison



# CHALLENGES AND OPPORTUNITIES

## Challenges

- Refilling times
- Row length
- Turning times
- Undulating ground conditions.

## Opportunities

- Merge compartments for longer rows
- Block spraying
- Extended shift hours or double shift
- Increased tank capacity
- Real time data sharing

# THANK YOU

