

# Recycling Sprayers and Mechanised Cane Pruning

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# Agenda

- Technology Overview
- Financials
- Pro's & Con's



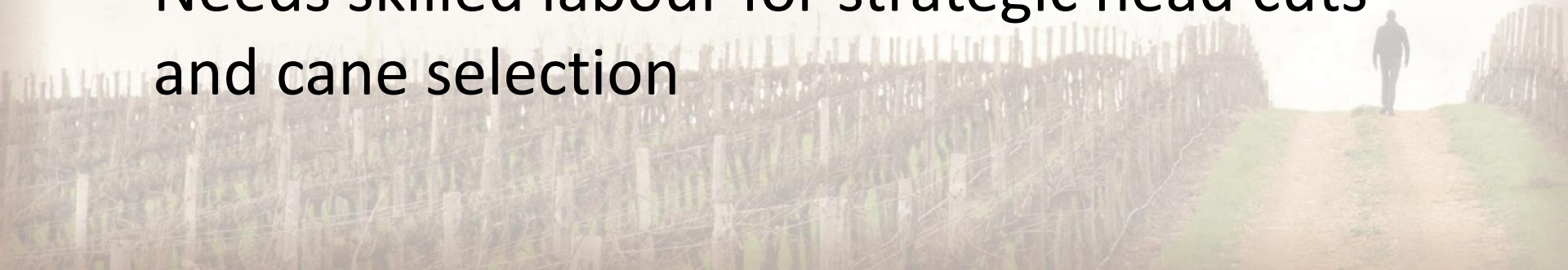
# 1. Mechanical Cane Pruning



# Mechanical Cane Pruning

## Why Cane Prune?

- Yield – particularly in some varieties (e.g. Sav Blanc)
- Sustainable system (?) – replaces cordon each year
- But is labour intensive and hence expensive
- Needs skilled labour for strategic head cuts and cane selection







# Financials

## 1. Capital / Setup Costs

Cost	\$
Klima Machine Cost	~\$120,000
Trellis conversion (once-off)	~\$300/Ha

- Machine costs ~\$160/hr to run including labour, fuel, depreciation, interest, R&M etc.



# Financials

## 2. Operational Savings

- Traditional

Operation	Hrs/ha	\$/Ha*	\$/Vine
Cut & pull-out	75	\$1,875	\$0.84
Wrap down	28	\$700	\$0.32
<b>TOTAL (A)</b>		<b>\$2,575</b>	<b>\$1.16</b>

- Klima

Operation	Hrs/Ha	\$/Ha*	\$/Vine
Pre-cut**	30	\$750	\$0.34
Klima machine Prune	1.4	\$220	\$0.10
Clean-up crowns / trim canes	15	\$375	\$0.17
Wrap down	28	\$700	\$0.32
<b>TOTAL (B)</b>		<b>\$2,045</b>	<b>\$0.92</b>
<b>SAVINGS (A-B)</b>		<b>\$530</b>	<b>\$0.24</b>
		<b>20.6%</b>	

- Banksdale Vineyard – King Valley
- 2.5m rows x 1.8m vine spacing = 2,222 vines per ha
- \* Labour assumed at \$25/hr
- \*\* Pre-cut includes complete prune & pull-out of 2 panels at each end of row

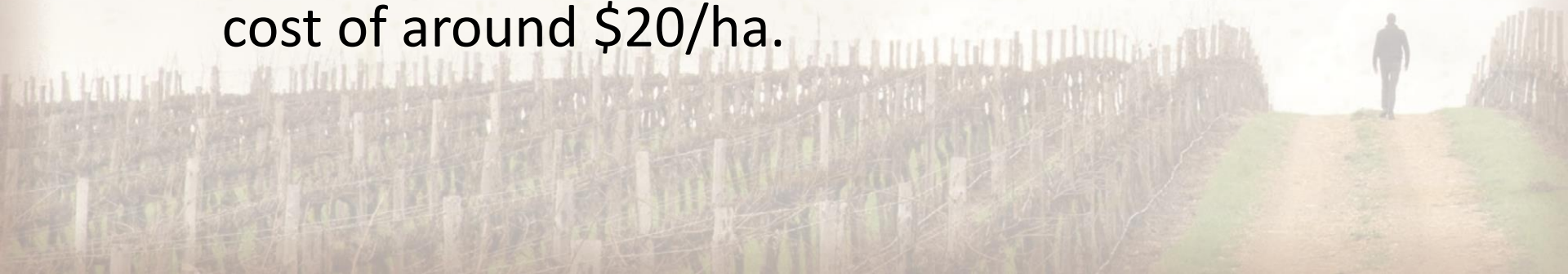
# Other Advantages

- Less OHS risk (pulling out)
- Reduced overall labour requirement means:
  - smaller crew size
  - more likely to higher proportion of “skilled” pruners



# Limitations

- Increased trellis R&M
  - Wire tension critical
  - Unclipping of wires may be required
  - Doesn't like 'Gripples'
  - Need strong end-assemblies
  - In the first season, it will do an "audit" of your trellis
  - After that, one wire repair for every 2-3Ha, at a cost of around \$20/ha.



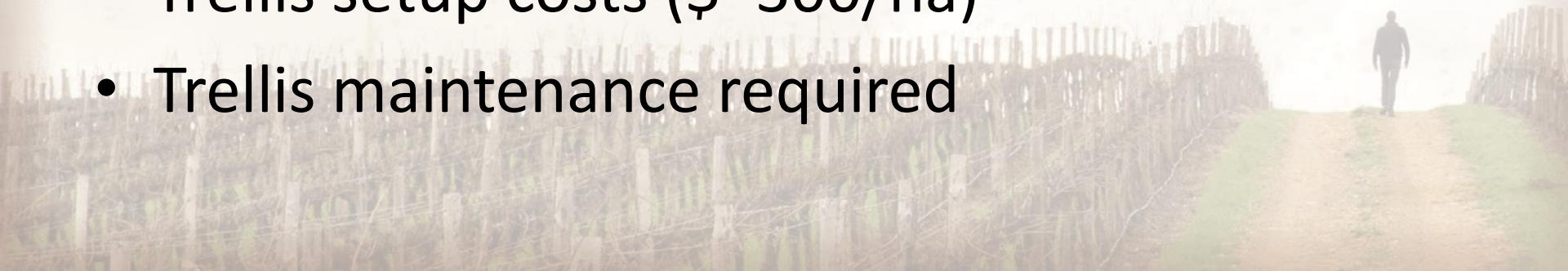
# Limitations

- Bud damage???
  - No obvious cases in our experience
  - Have heard anecdotal reports, but assume this is guessing



# Klima Summary

- Saves ~40% of “pulling out” cost (20% overall)
- OHS advantages
- In vigorous cane-pruned vineyards, can't imagine going back to traditional.
- Capital cost means needs a reasonable area required to be viable
- Trellis setup costs (\$~300/ha)
- Trellis maintenance required



## 2. Recycle Spraying



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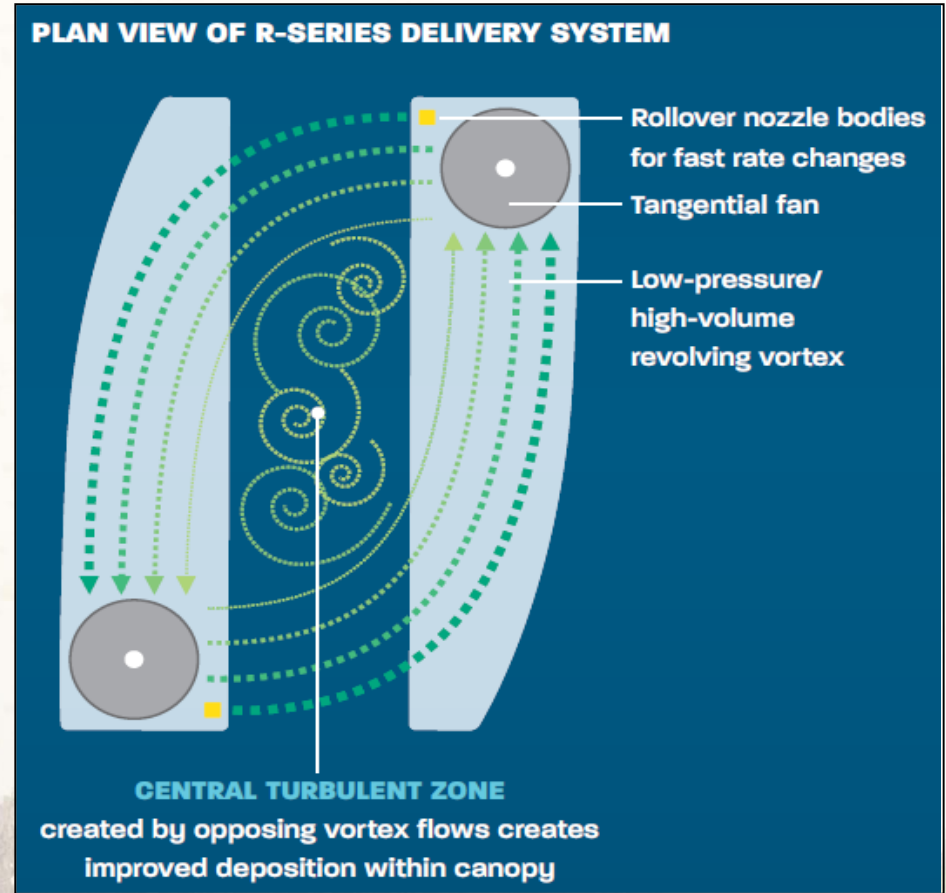


# Recycle Spraying

- Why?
  - High disease pressure sites (Tas)
  - 12+ preventative sprays per year
  - ~\$600/Ha fungicide budget
  - Short spray windows
  - Windy
  - Close to waterways
  - Close neighbours



# Recycle Spraying

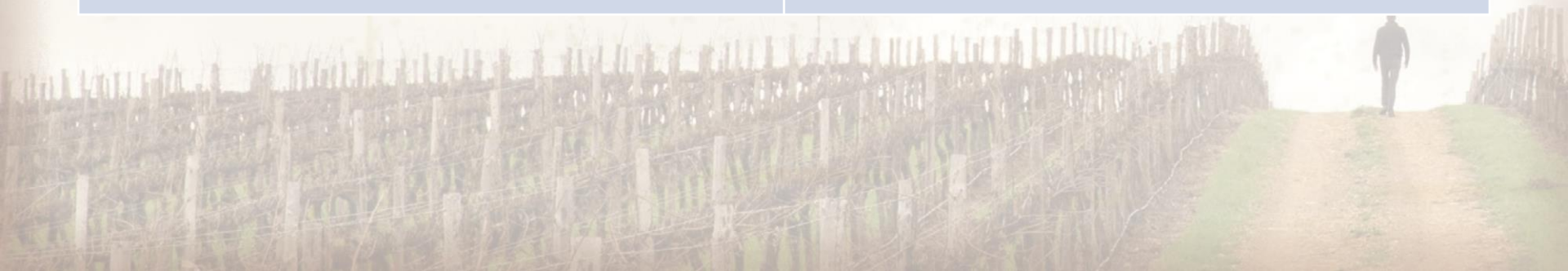


# Recycle Spraying

- Savings/Benefits:
  - Chemical: average recovery rate across entire season of **30%**.
  - Expensive chemicals/early season/high rates = bigger savings.
  - Spray drift almost completely eliminated
  - Productivity (less tank-fills early season)

# Recycle Spraying

	<i>Recovery Rates</i>
Late Woolly Bud	80%
2 Weeks Post BB	80%
+10 days (shoots10-20cm)	60%
+10 days (shoots30-50cm)	50%
Start Flowering	40%
End Flowering	30%
Berries 4mm	10%
Berries Pea Size	5%
Veraison	5%



# Recycle Spraying

- Savings/Benefits:
  - Time (labour) savings vary. Significant in early season
  - Late season probably slower (compared to say 3000L sprayer)



# Recycling Sprayer - Financials

- 2300L FMR Recycling Sprayer ~\$80K
- 3000L Croplands ~\$65K
- High pressure site fungicide cost – say \$500/Ha
- 30% recovery = \$150/ha
- Slightly higher R&M with recycling unit



# Recycling Sprayer – Pro's



- Significant chemical savings – particularly early season
- Less travelling to fill point early season
- Significant drift reduction
- Better coverage in windy conditions?



# Recycling Sprayer – Con's

- Bit dearer to buy (but payback can be pretty quick)
- Slightly higher R&M
- Coverage in heavy canopy (??)
- Spore dispersal (??)



# Recycle Spraying Summary

- Early days but we are happy with the technology.
- Recycling rates achieved as per claims
- Definite drift reduction.
- Definite chemical savings
- Not for all situations (e.g. sprawl canopy, Murray Valley, low chemical input)



# Conclusion

- These technologies definitely have their place
- Can produce enhanced financial, safety & environmental outcomes
- But not for every situation
- Need to do thorough analysis before adoption



# Thank-you

## Questions?

