

Plant & Food

RESEARCH

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Grapevine trunk disease Management and economic impact

Mark Sosnowski & Eline van Zijll de Jong



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Government of South Australia

Department of Primary

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GRAPEVINE TRUNK DISEASE



Eutypa dieback

Eutypa lata and Diatrypaceaous spp.













Botryosphaeria dieback

Botryosphaeriaceous spp.









DISEASE CYCLE









Trunk disease surveys

- Regional differences - rainfall, variety, pruning style
- Symptoms evident from 7 yo
- Up to 80% by 20 yo
- Overall incidence
- Up to 80% by 20 yo Overall incidence from 8% in 2013 to 20% in 2018
- Large variation









Rainfall (long-term average)

120 100 Monthly rainfall (mm) 80 Napier Blenheim 60 Alexandra 40 20 Pruning season 0 JAN JUL AUG OCT NOV DEC FEB MAR APR MAY JUN SEP

Source: www.niwa.co.nz



MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT HIKINA WHAKATUTUKI

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Varieties



Source: Wine Australia







Pruning system

- Overall 34% cordon-pruned vs 17% canepruned
- · Cabatronto Saverignan, Chardonnay and
- Balance may swing as vineyards age
- Hawke's Bay vs Marlborough







SPORE SURVEILLENCE



Hawke's Bay







Trends in 2017/18

• ED and BD spores detected all year

predominantly associated with rainfall events

10% spore detection days - no rain

 ED spores prevalent: late winter – late spring & early autumn
 BD Storman & EMPLOYMENT ALE PAILENT

SPORE SURVEILLENCE

Marlborough

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Trends in 2017/18

• ED and BD spores detected all year

predominantly associated with rainfall events

up to 25% spore detection days - no rain

• ED spores prevalent:

Number of gene

mid – late winter & late spring – INNOVATION & EMPLOYMENT early Summer

WOUND PROTECTION

Approved products

Paint application

- Garrison Rapid (cyproconazole + iodocarb)
- Greenseal Ultra[™] (tebuconazole + octhilinone)
- PruneTec[®], Vistaseal [™] (tebuconazo
- Vinevax[™] (*Trichoderma* spp.)
- InocBloc[™] (pine tar)

Spray application

- Gelseal Ultra Spray-on (tebuconazole + bc
- Megastar[™] (flusilazole)
- GEM[®] (fluazinam)



New Zealand Winegrowers Vineyard Spray Schedule 2020/21 Advisory #1 19 May 2020



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vinevax





WOUND PROTECTION Spray application















CHIEF[®] (carbendazim)





WOUND PROTECTION Timing of application



Preventative (Fungicide applied on day of pruning)





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RANGAHAU AHUMĀRA KA





CHIEF(carbendazim)Folicur®(tebuconazole)



WOUND PROTECTION

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Case study

- Select group of 102 blocks
- Large wounds protected since 2006
- All wounds protected since 2013









Purpose

- Improve productivity by 'renewing' infected vines
- Remove diseased wood and rework vines
- Efficacy dependent on:
 - Complete removal of infected wood
 - Growth of watershoots







When to intervene?



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Pathogen detected ahead of necrotic staining hut hohind

'Clean' remedial



cut site

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REMEDIAL SURGERY







'Clean' cut site sufficient distance from graft for watershoot growth



When to cut vine?





Impact of sap flow on wound









Field trials

- Three commercial vineyard blocks
 requiring remedial surgery
- Remedial surgery carried out in winter and spring over 4 years at same cut height
- Field data:

SOUTH AUSTRALIA RESEARCH AN

- Watershoot production
- Crop yields pre- and post-treatment
- Disease progression (dieback, wood staining)

colonisation



Cabernet Sauvignon Sauvigher Blanc (organic)







Sauvignon Blanc 92% vines with





44% vines with staining



Cabernet Sauvignon





4% vines with staining at cut



Merlot

65% vines with





52% vines with staining





Sauvignon Blanc



Botryosphaeriace Innaeus Sp. Cabernet



Eutypa lata







Waideabeatridfecitions f dieback staining in longitudinally cut vines that lacked staining at remedial cut site abernet







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Sauvignon Blanc

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Cabernet





Merlot













ECONOMICS

Greg McCarthy Sutton McCarthy Ltd



Wound protection – hand vs spray application









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Manata Abu Matu

Based on: Sauvignon Blanc Cane-pruned 2220 vines per ha



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NPV = net present value

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Remedial and preventative response



Based on: Sauvignon Blanc Cane-pruned

2220 vines per ha









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Remedial and preventative response



Sauvignon Blanc Cane-pruned

2220 vines per ha









NPV = net present value



ECONOMICS Greg McCarthy Sutton McCarthy Ltd



Remedial and preventative response





Based on: Sauvignon Blanc, Cane-pruned 2220 vines per ha







NPV = net present value



SUMMARY

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Take home messages

- Symptoms evident from 7 years up to 80% by 20 years
- Pruning style, variety and rainfall influence dieback incidence
- Spores present all year round in response to rain, mostly in winter and spring
- Wound protection can reduce dieback incidence
- Early adoption will minimize future cost, spray application further reduces cost
- Remedial surgery can be used to remove infection and retrain new vine

Remediation + preventative sprays can provide up to











World-leading research from grape to glass

