

Pistachio Information & Technology Groups

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Juvenile Shoot Dieback

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Hort
Innovation
Strategic levy investment

PISTACHIO
FUND

This project has been funded by Hort Innovation using the pistachio research and development levy and funds from the Australian Government. For more information on the fund and strategic levy investment visit horticulture.com.au

Juvenile Shoot Dieback – Recap

Hypothesis

- **Abiotic factors** including but not limited to weather, soil, water, topography & geographical location
- **Orchard management components** variety/ rootstock / training & pruning / irrigation / nutrient management / soil water status / other chemicals – oil, micronutrients, fungicides etc.
- **Pathological cause** investigate possible pathological reasons – NOT DETECTED

Assess economical impact on the industry



Dormancy : Weather + Past & Present : Management

Temperature play an important role

Irrigation

RH

Fertilizer – previous season's

Solar radiation

Oil application

Rainfall

Tree nutrient & water status

Perfect combination = Dieback

JSDB 2024

Location	JSDB	JSDB variation
Sunlands	√	
Waikerie	√	
Renmark		√
Paringa		√
Kyalite		√
Lake Powell		√

Low Temperatures – play a role

- No of Days < or = 0
- No of hours < or = 0
- How low the temp
- Frequency
- When

2024

< 5 km



Dormancy Freeze	Richard, Waikerie	Rob, Waikerie
Dieback	Yes	No
Mar to Aug		
Days < or = 0	25	19
Hrs < or = 0	97	70
Dates	27Apr to 11Aug	27Apr to 11Aug
Temp range	-4 to 0	-2 to 0
Lowest T	-4	-2
on	29 Jul	29 Jul
Autumn Freeze		
Mar-May	Yes	Yes
Days < 0	6	8
Hours < 0	19	21
Dates < 0	27-Apr	27/04/2024
	22,25,26,27,29 May	19, 22,23,25,26 & 27May
Temp range	-1 to 0	-1 to 0
Lowest T on	22, 26 & 27 May	19 & 22 May

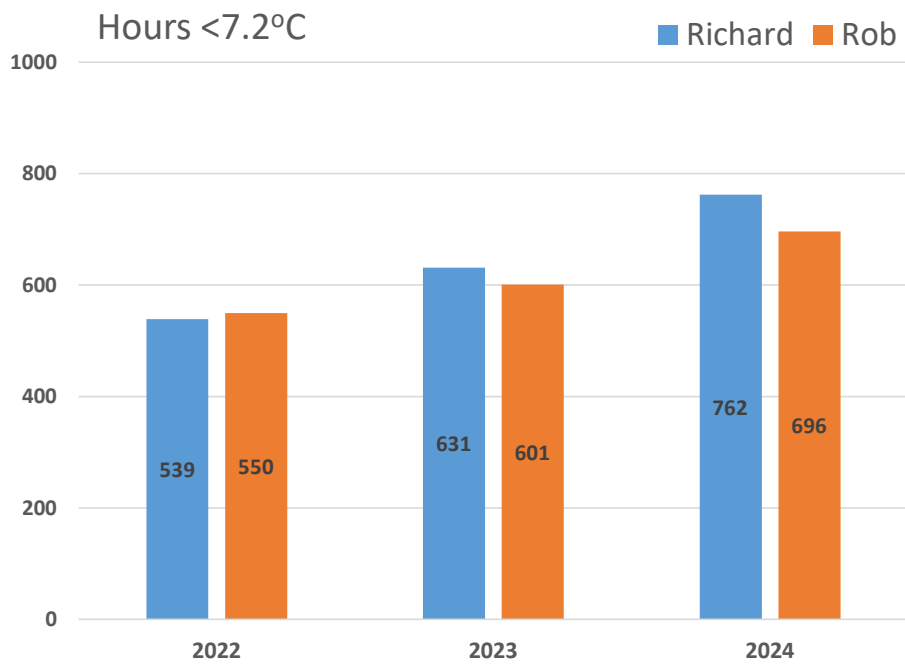
Difference in localised environment

< 3km

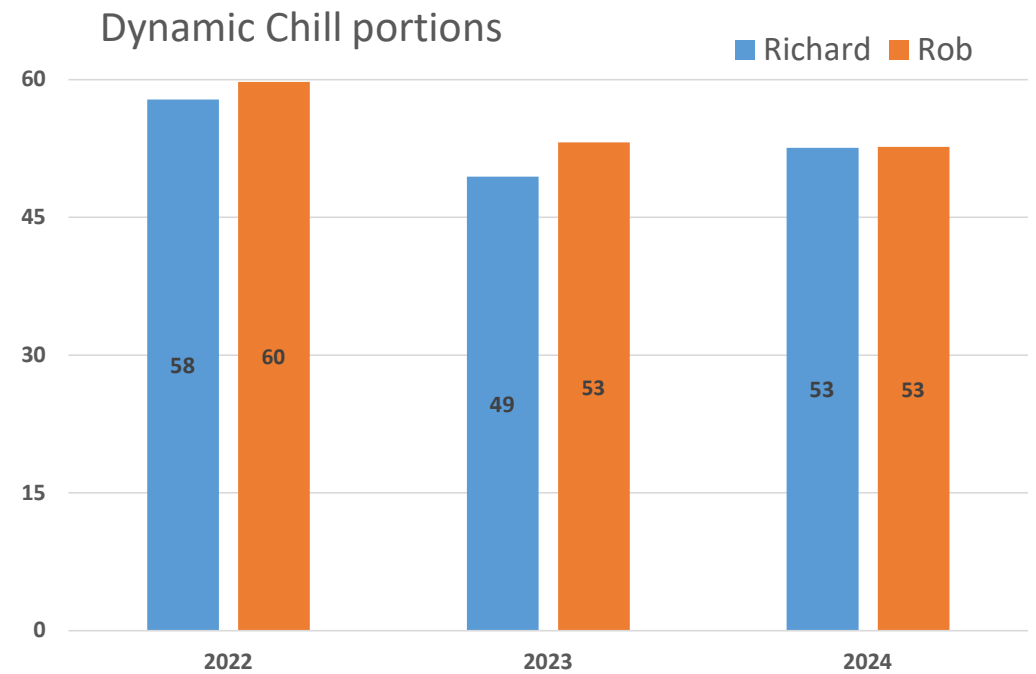


	Simpfendorfer's	Lui	Bob, Renmark
Dormancy Freeze			
Dieback			
Mar to Aug	JSDB variation	No	JSDB variation
Days < or = 0	4	3	11
Hrs < or = 0	11	4	49
dates	19 May to 29 Jul	3 Jul to 29 Jul	19 May to 11 Aug
Temp range	-1 to 0	0	-1 to 0
Lowest T	-1	0	-1
on	3 Jun	both days	5 days
Autumn Freeze			
Mar-May	Yes	No	yes
Days < 0	1		3
Hours < 0	2		9
Dates < 0	19 May		19,22&26 May
Temp range	0		-1 to 0
Lowest T on	19 May		26 May

Orchards in Waikerie – Straight line distance of less than 5km



E.g. 30 hrs



E.g. 4 CP

JSDB – Normal symptoms



**Sunlands
(near Waikerie)**

Simpfendorpfer's
- Paringa



JSDB variation
What do we call this ???



➤ Temporary dieback ???

➤ Zombi shoots ???

➤ Hungover shoots ???

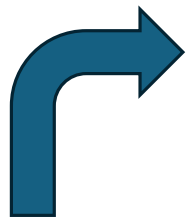
Bob – Renmark
24/10/2024



Simpfendorfer's 24/10/2024



Simpfendorfer's
24/10/2024



Zombi shoots
24/10/2024



Healthy shoots
24/10/2024



Simpfendorpfer's

Shoots
24/10/2024



Shoots
06/11/2024



Simpfendorfer's

12/11/2024



FUTURE DIRECTION ??

- **Combination of events - complicated – hard to replicate**
- **Multidisciplinary approach for investigation**
- **Likely associates –**
 - **Abiotic stress (drought & frost)**
 - **Management practices (water, fertilizer, il application)**
 - **sugar/starch (NSC) imbalance - growth failure**

UNTIL THEN

Don't s

- **Avoid oil application at - immediately before or after low temp (<5oC)**
- **Reduce N application from Jan - N to maintain healthy leaves**
- **Avoid fertilizer application closer to & post harvest –**
 - **NO SINK - REDUCED PLANT FUNCTIONS**

Do's

- ✓ **Keep up soil moisture level & plant water status during autumn & winter**
- ✓ **Keep up potassium, calcium and zinc nutrient levels**

THANK YOU

Acknowledgements

- Growers & Orchards
- Managers & other staff
- Research Committee
- Hort Innovation



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