

Pistachio Information and Technology Groups

2 May 2024

Polymers in Pistachios

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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

Polymer trials

Season (Winter)	Location/ Region	Chill accumulation (Dynamic Chill Portions)		Application		
		15 th Aug	31 st Aug	Polymer	Oil	Polymer
2021	Waikerie/ Riverland	49.2	56.1	25Aug	31Aug	7Sep
2022	Paringa/ Riverland	57.5	66	9Aug	23Aug	5Sep
2022	Robinvale/ Sunraysia	62	70.4	16Aug	30Aug	12Sep
2023	Robinvale/ Sunraysia	58.2	65.6	2&7Aug	21Aug	4Sep

Chill portions from Landscape weather network, Lower Murray Water

Statistically randomised treatments

Concentration

Polymer : 0.5%

Oil : 5 to 6 %

Effects of Polymers on....

Phenology : *Bud burst & Flowering*

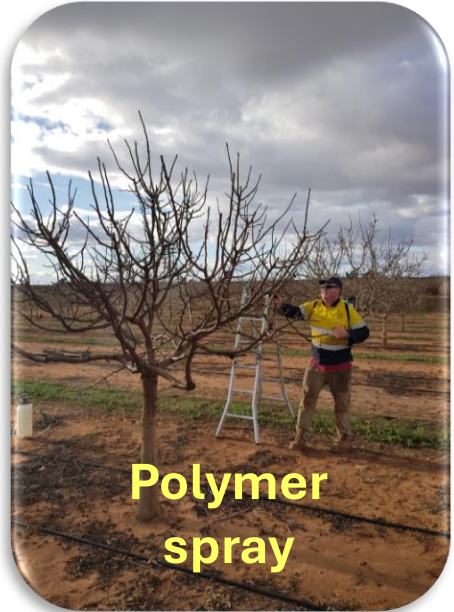
Yield components : *No. of buds*

Yield & quality : *In-hull & Marketable yield, Blanks*

No. of bunches / No. of nuts / Weight of nuts



**Waikerie,
Richard Issacson**



**Polymer
spray**



**Tree covered
with tarpaulin**



**Paringa,
Simpfendorfer's**



**Robinvale,
CMV Farms**



Shoot Observations

Data matrix

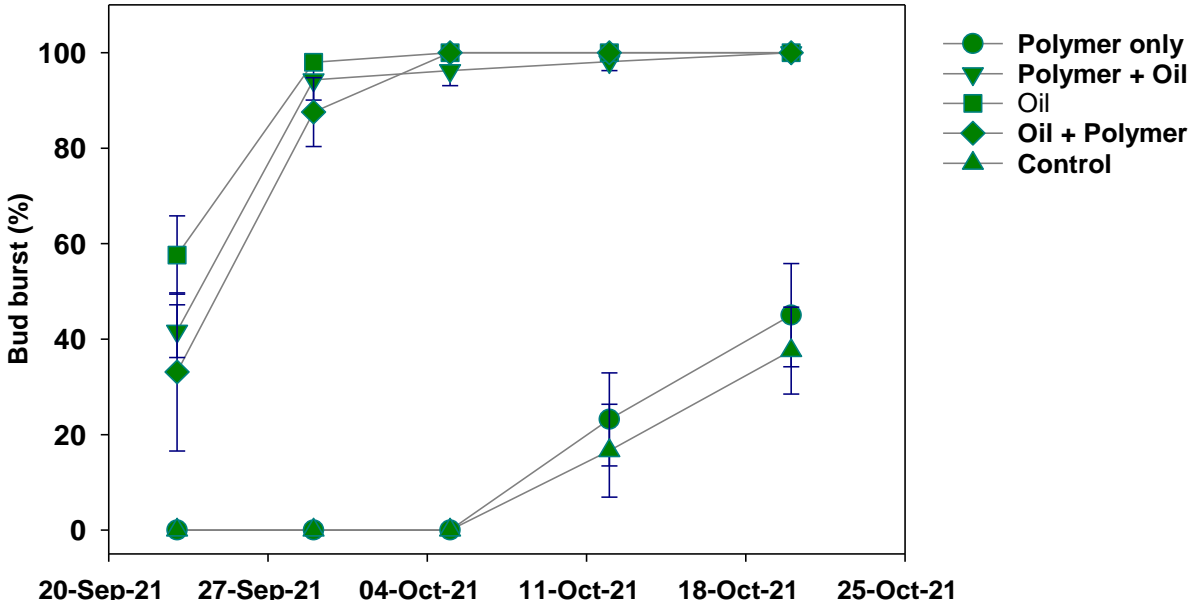
24 CMV	T1 R1 PO		Rw #: 5 Tr #: 1 Sh #: 1	24 CMV	T1 R1 PO		Rw #: 5 Tr #: 1 Sh #: 2	24 CMV	T1 R1 PO		Rw #: 5 Tr #: 1 Sh #: 3
24 CMV	T1 R1 PO		Rw #: 5 Tr #: 2 Sh #: 1	24 CMV	T1 R1 PO		Rw #: 5 Tr #: 2 Sh #: 2	24 CMV	T1 R1 PO		Rw #: 5 Tr #: 2 Sh #: 3
24 CMV	T1 R1 PO		Rw #: 5 Tr #: 3 Sh #: 1	24 CMV	T1 R1 PO		Rw #: 5 Tr #: 3 Sh #: 2	24 CMV	T1 R1 PO		Rw #: 5 Tr #: 3 Sh #: 3
24 CMV	T1 R1 PO		Rw #: 5 Tr #: 4 Sh #: 1	24 CMV	T1 R1 PO		Rw #: 5 Tr #: 4 Sh #: 2	24 CMV	T1 R1 PO		Rw #: 5 Tr #: 4 Sh #: 3
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24 CMV	T1 R2 PO		Rw #: 19 Tr #: 1 Sh #: 1	24 CMV	T1 R2 PO		Rw #: 19 Tr #: 1 Sh #: 2	24 CMV	T1 R2 PO		Rw #: 19 Tr #: 1 Sh #: 3
24 CMV	T1 R2 PO		Rw #: 19 Tr #: 2 Sh #: 1	24 CMV	T1 R2 PO		Rw #: 19 Tr #: 2 Sh #: 2	24 CMV	T1 R2 PO		Rw #: 19 Tr #: 2 Sh #: 3



Shoot tags

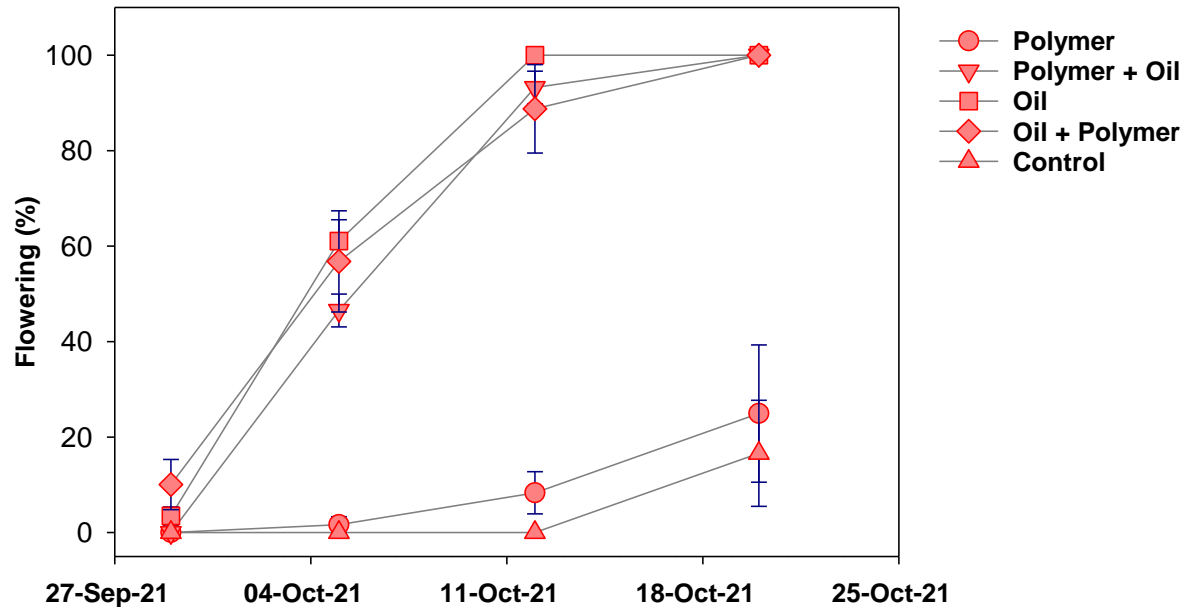


Phenology- 2021, Waikerie

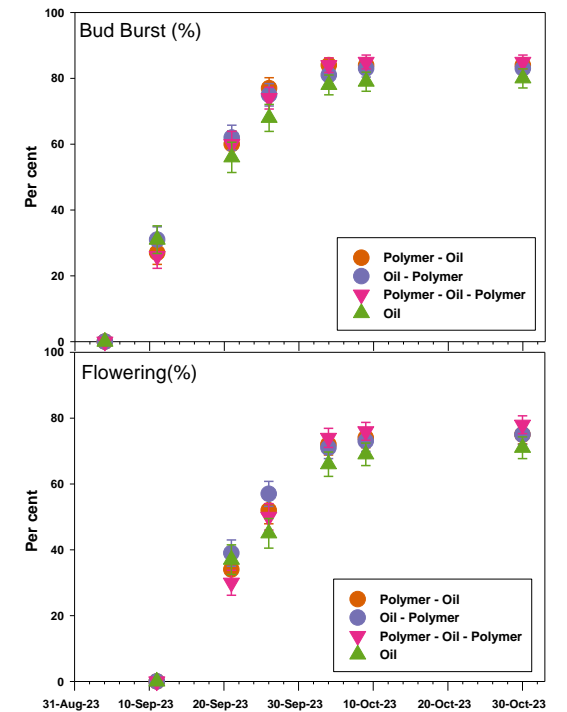


Polymer only = Control
(Phenology delayed by 3 weeks)

Polymer + Oil = Early & Narrow window



Robinvale, CMV Farms 2023/24



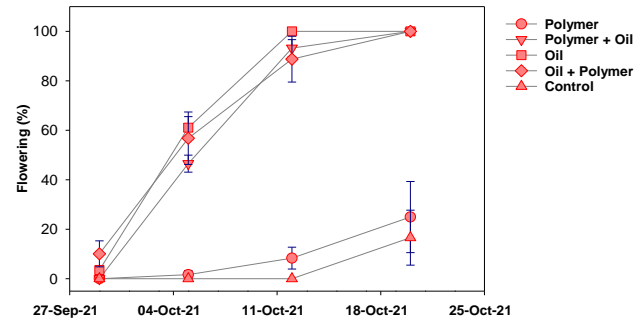
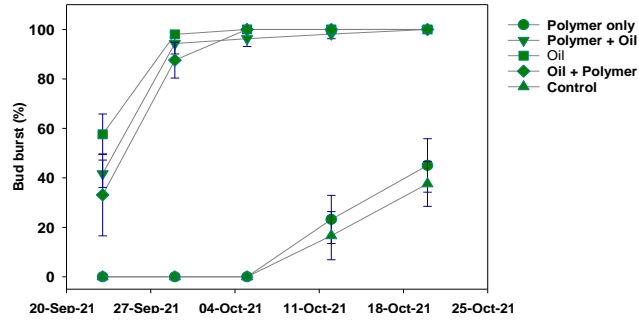
Polymer enhanced budburst and flowering (Non-significant)

Robinvale, CMV Farms 2023/24

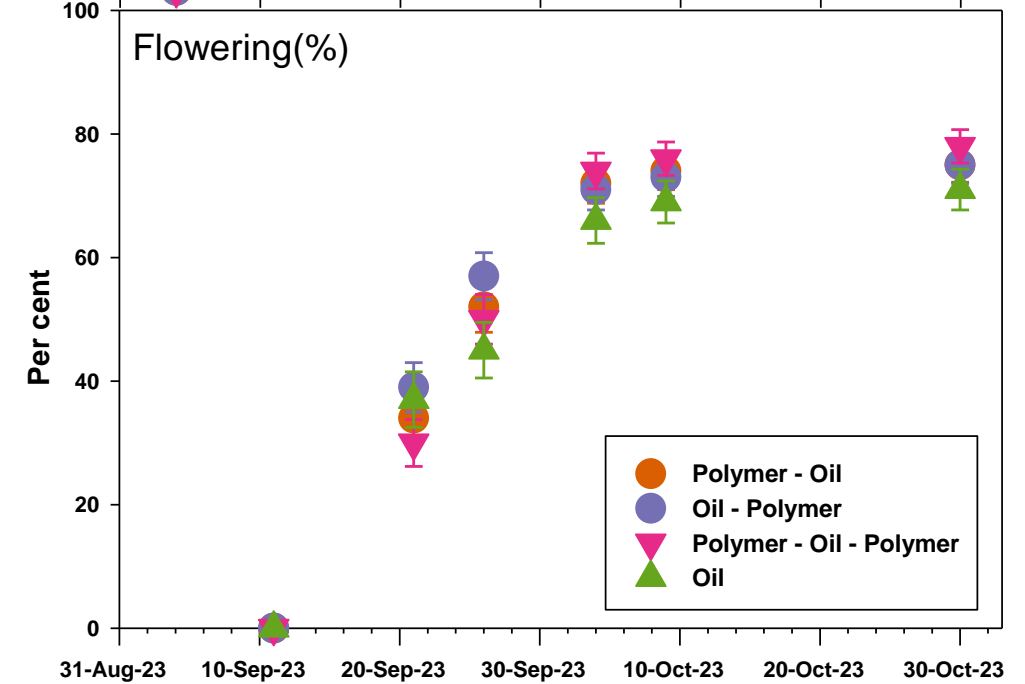
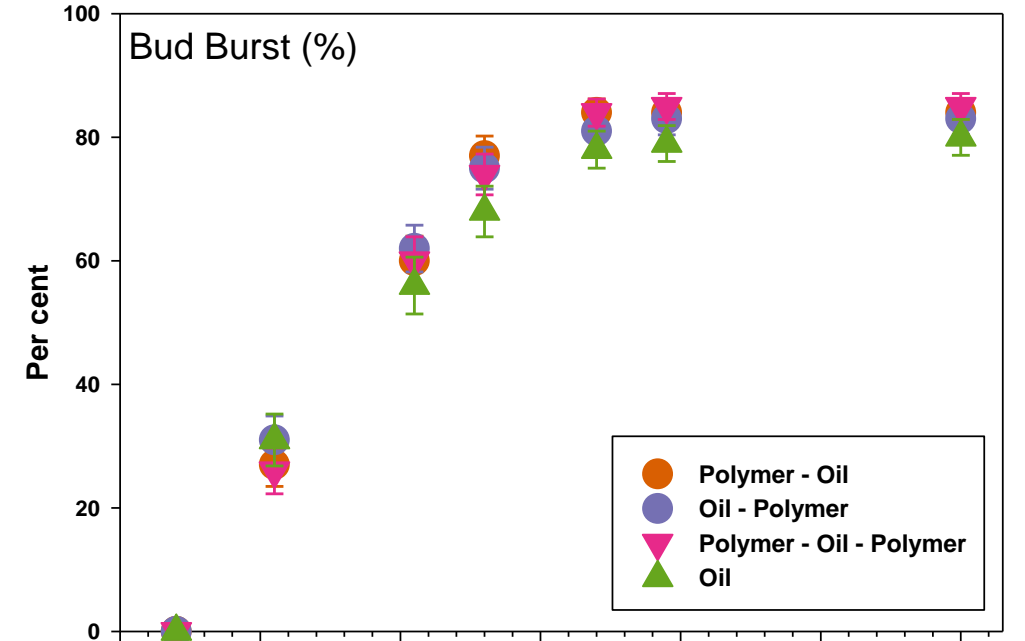
Phenology

Polymer only = Control (Phenology delayed by 3 weeks)

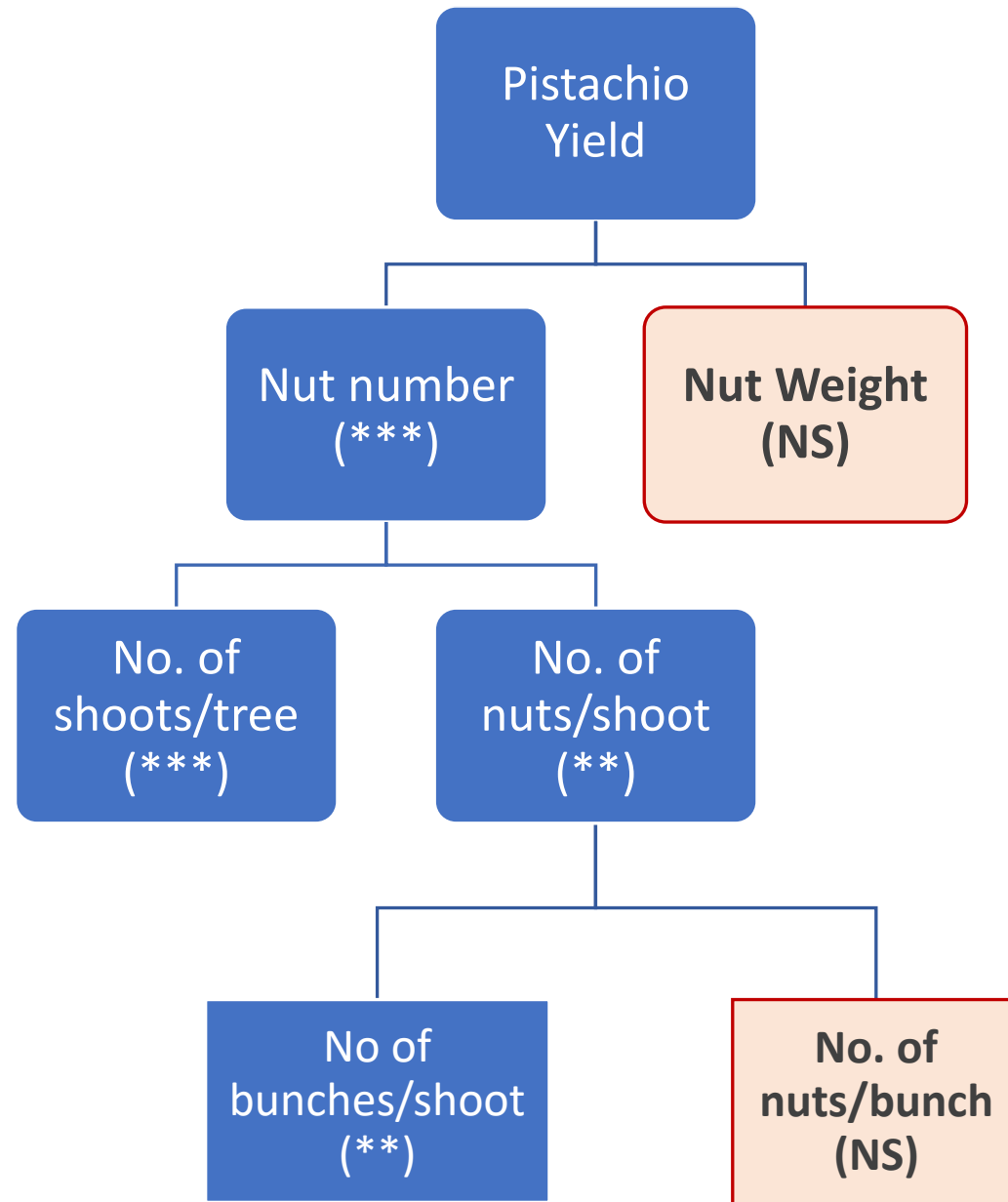
Polymer + Oil = early & narrow window for Phenology



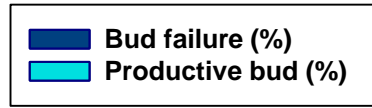
Polymer enhanced budburst & flowering (Non-significant)



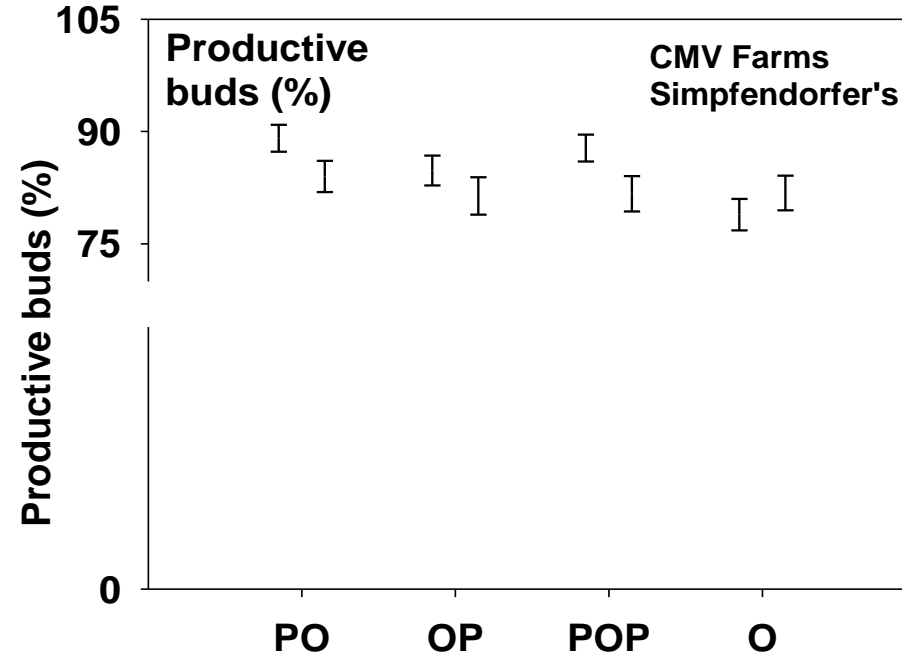
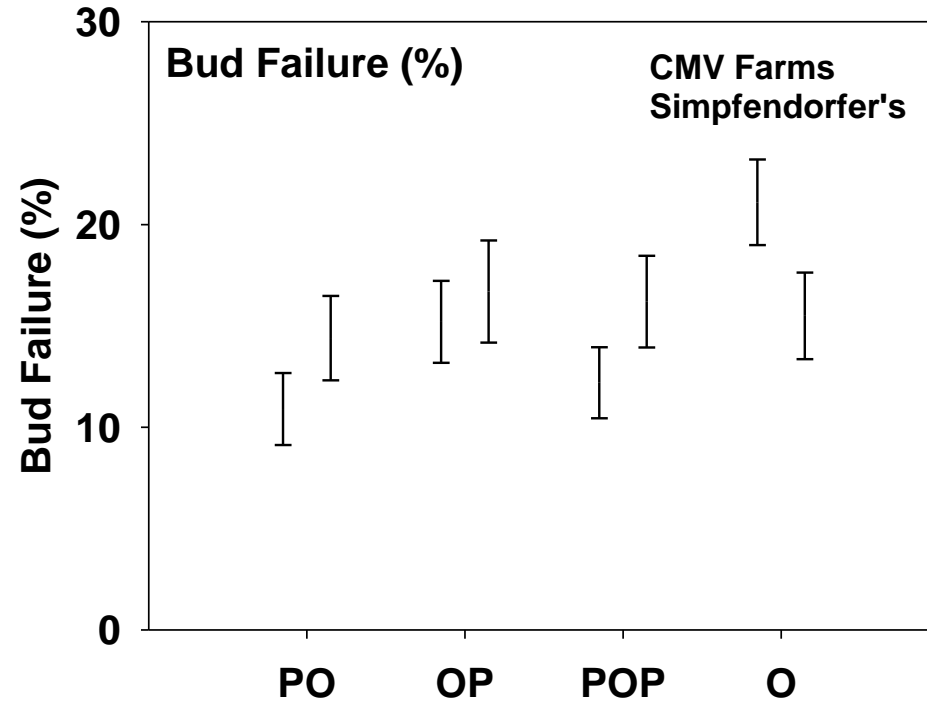
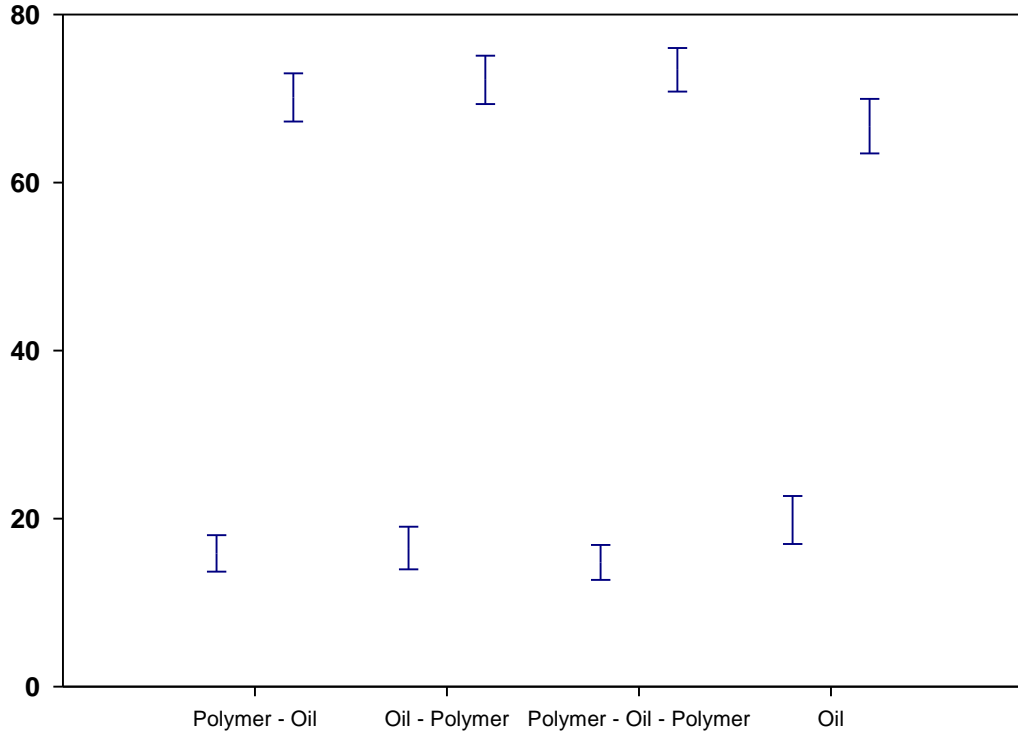
Yield as flow chart



Bud Statistics, 2023 & 2024



Bud Stats (CMV : 2023)

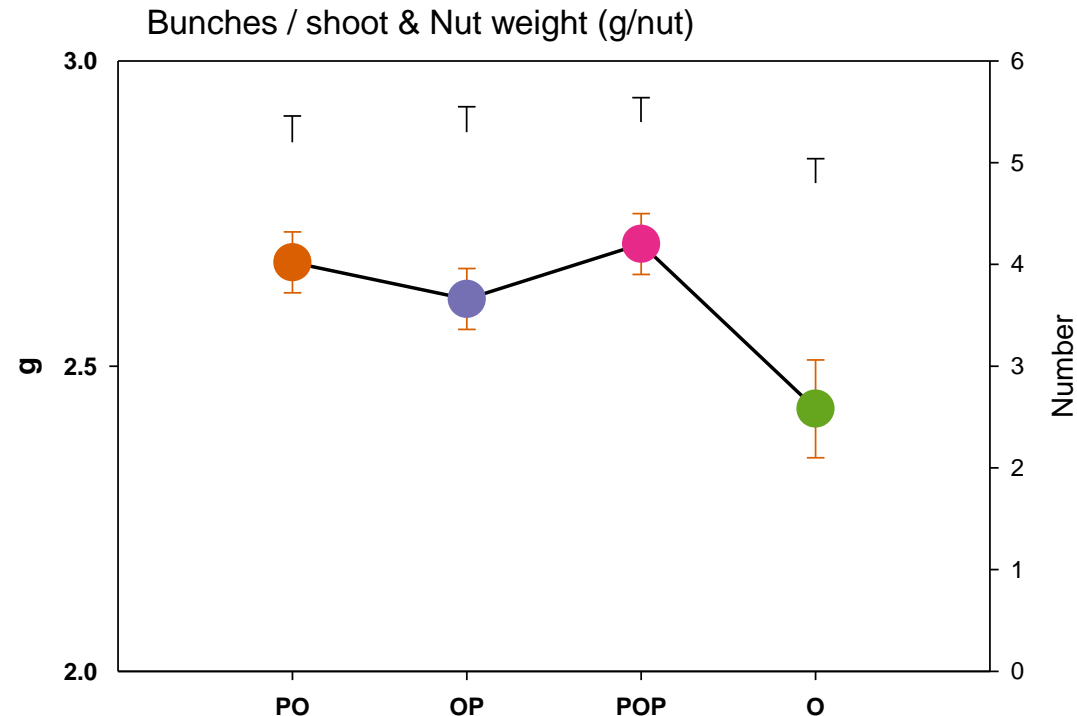
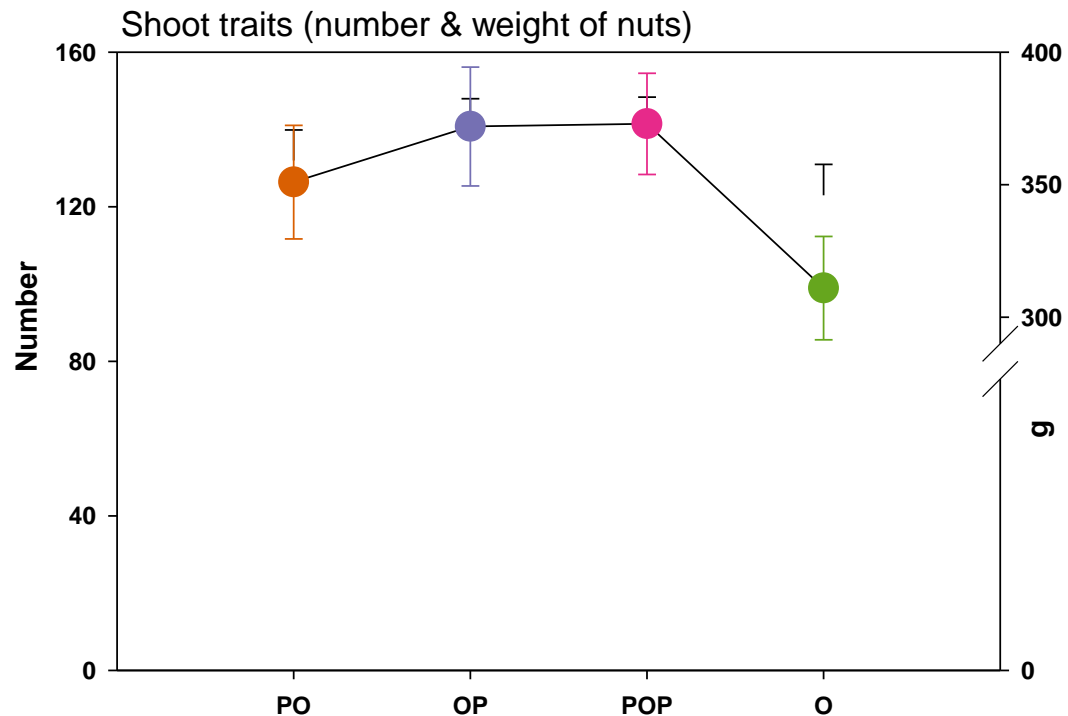


Effect of polymers on

Bud failure & Productive buds

were significant (CMV, 2022/23)

Yield contributing traits from 2023/24 trial

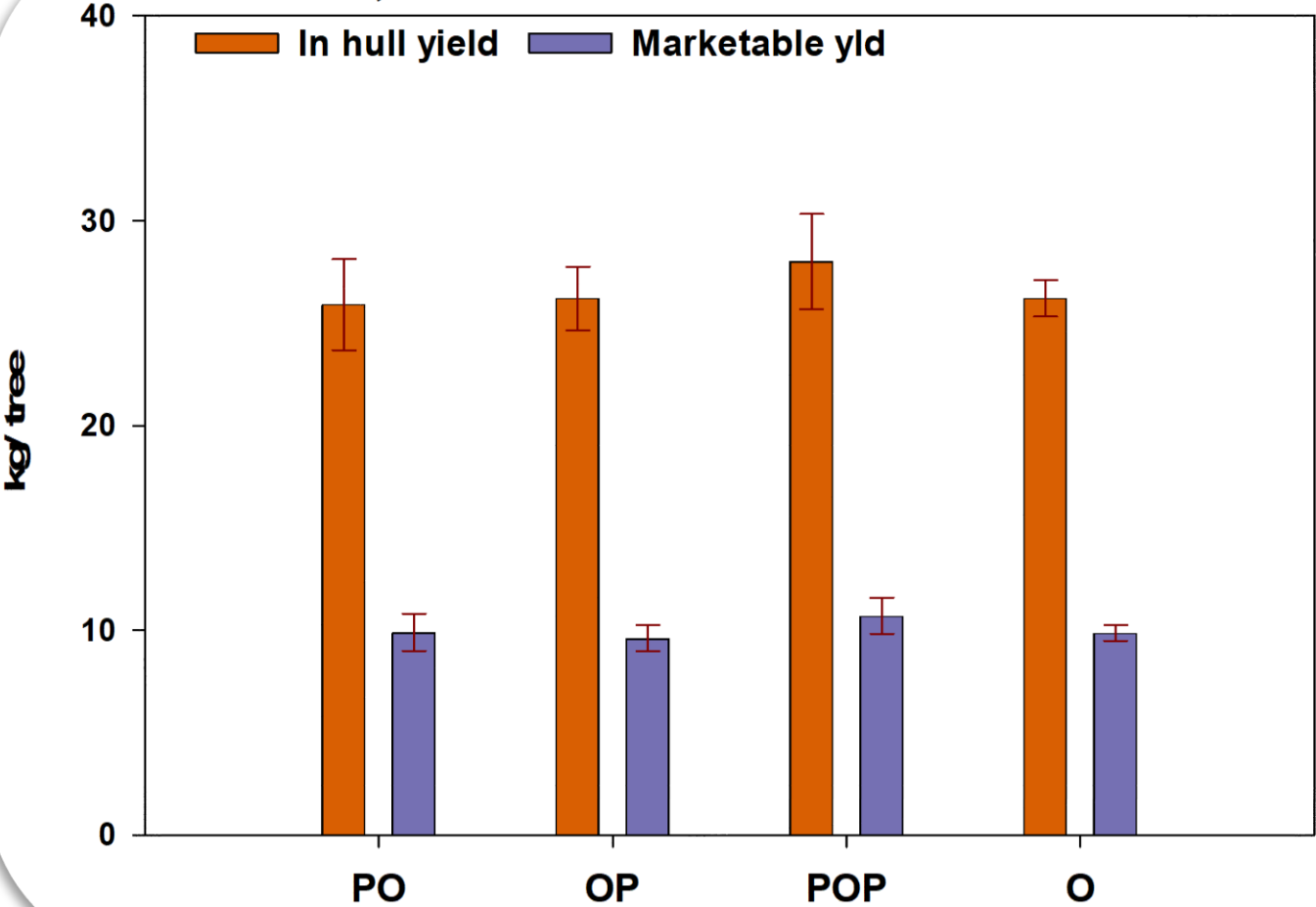


Treatment	Number/shoot	Weight (g/shoot)
P – O	132	351
O – P	140	372
P – O – P	141	373
O	123	311

Treatment	Bunches/shoot	Weight (g/nut)
P – O	5.2	2.67
O – P	5.3	2.61
P – O – P	5.4	2.70
O	4.8	2.43

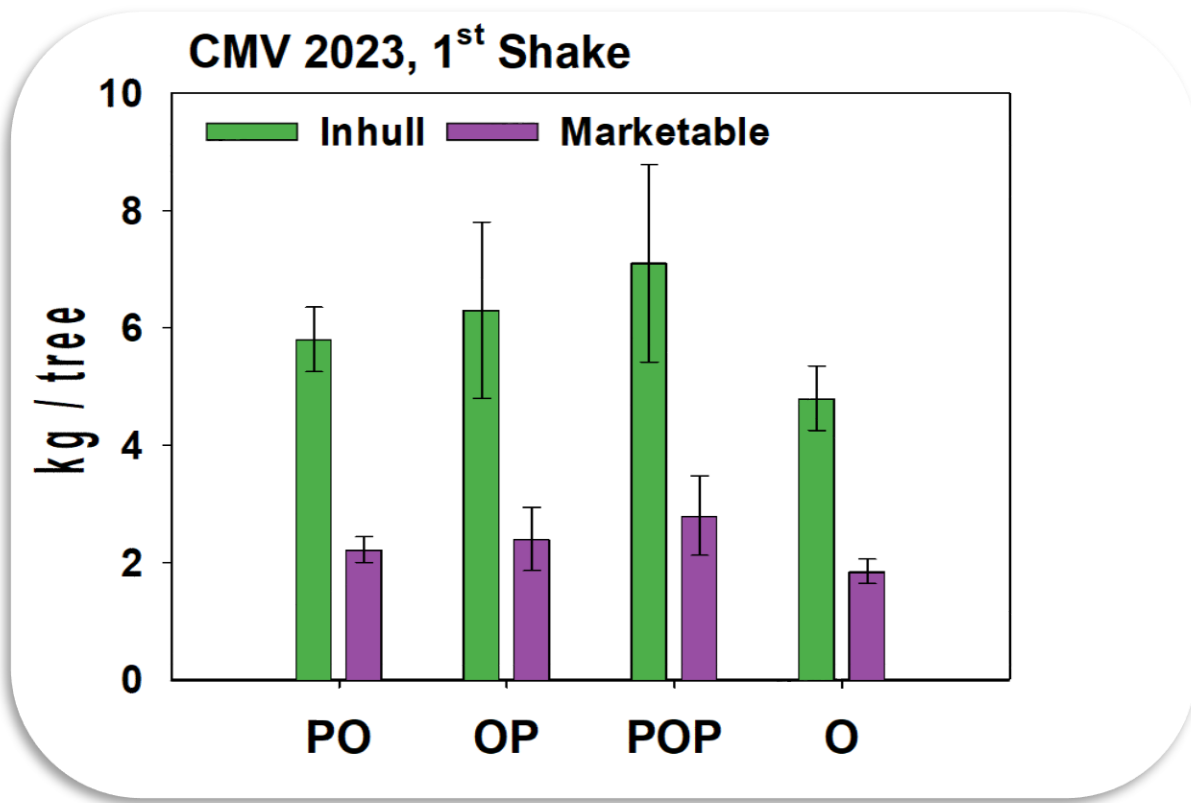
2024 Season Results

CMV 2024, 1st Shake

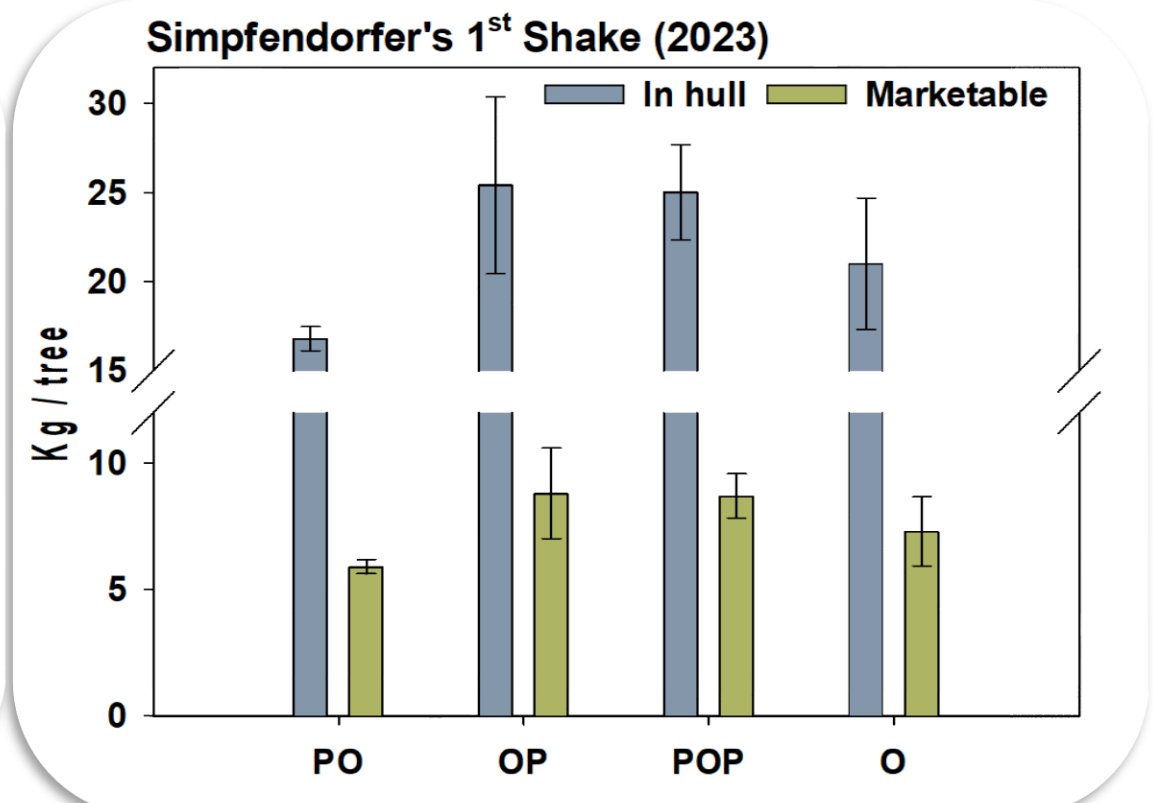


Treatment	In Hull	Marketable
P - O	25.9	9.9
O - P	26.2	9.6
P - O - P	28.0	10.7
O	23.2	9.9

2023 Season Results



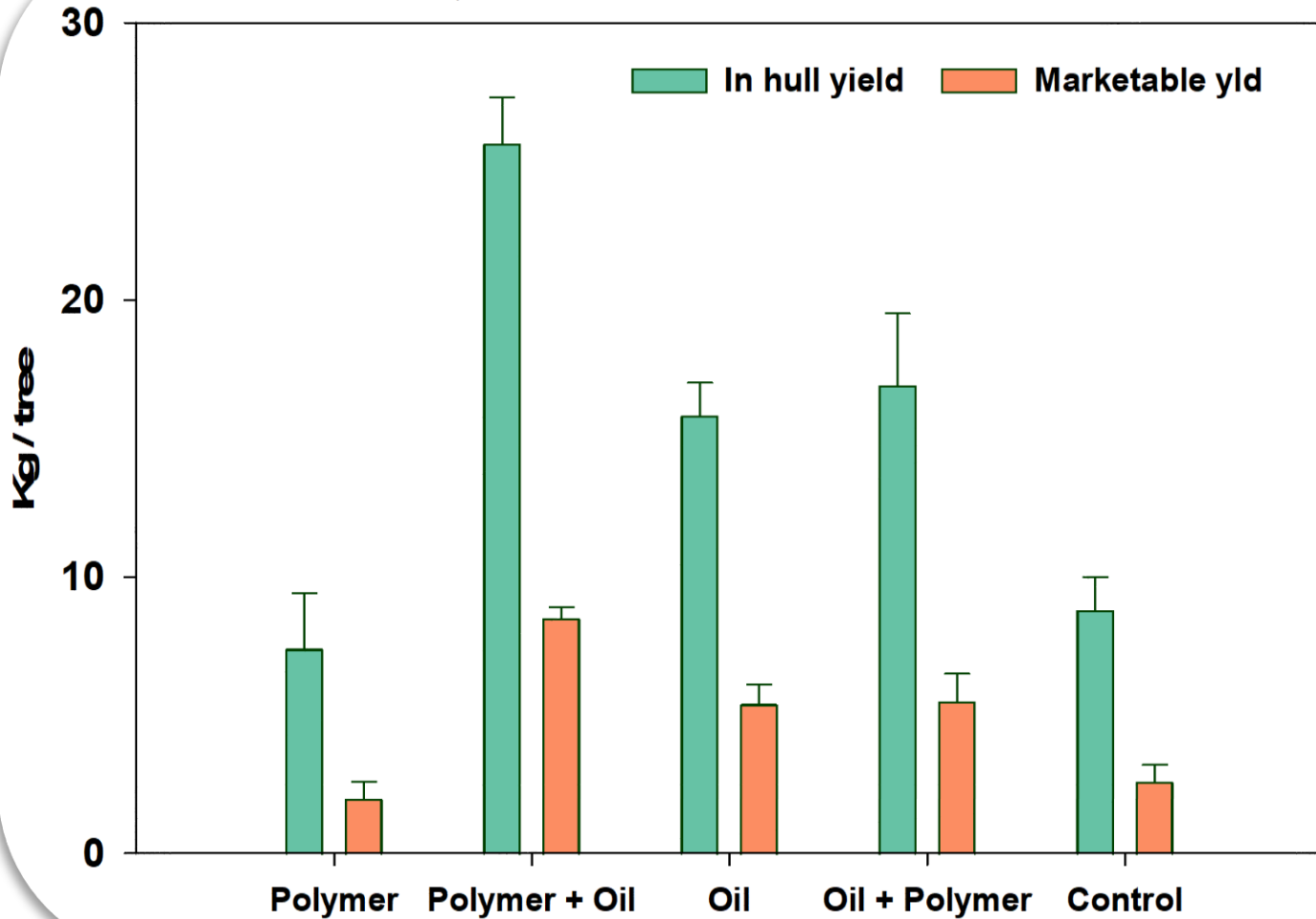
Treatment	In Hull	Marketable
P - O	5.8	2.2
O - P	6.3	2.4
P - O - P	7.1	2.8
O	4.8	1.9



Treatment	In Hull	Marketable
P - O	17	6
O - P	25	9
P - O - P	25	9
O	21	7

2022 Season results

Waikerie 2022, 1st Shake



	In hull yield	Marketable yield
Polymer	7	2 c
Polymer + Oil	26	9 a
Oil	16	5 b
Oil + Polymer	17	6 b
Control	9	3 c

Conclusion.....

Polymer effects on

- **Phenology** – Promising for early and narrow window for bud burst & flowering when sprayed in conjunction with oil
- **Bud & yield component traits** – viable buds leading to productive with more number of nuts carried to maturity
- **Yield** – Polymer application before and after oil application could potentially improve yield and quality with reduced blanks

More research needs to be done in locations prone for chill failures



Thank You

Acknowledgements

- **Growers & Orchards**
- **Research Committee**
- **Hort Innovation**