

New Australian Almond Varieties (PBR & Commercialisation)

AL12015 Australian Almond Breeding Program

- Secondary selections under evaluation
 - Secondary Block 1 LP planted 2006
 - Block 2 LP, planted 2010
 - Block 3 LP, planted 2013
 - Block 4 LP, planted 2016
 - Block 5 ACE Loxton, planted 2017, Block 6 in 2018
 - Block 7 Hillston, planted 2017
- Commercial trials
 - 5 selections from Block 1, 100 trees of each @ 3 sites, planted 2013
 - 1 selection from Block 2
 - First commercial yield 2016

Plant Breeders Rights (PBR)

- PBR acceptance
 - No.1 = 'Carina'
 - No.2 = 'Capella'
 - No.3 = 'Maxima'
 - No.5 = 'Mira'
 - No.7 = 'Rhea'
 - No.10 = 'Vela'
- US Plant Patents filed for first five.
 - First five in quarantine in Beltsville, Maryland, USA
 - Due for provisional release in Dec 2017

New Australian varieties

- Carina^A - is highly spur bearing with a compact to medium canopy that may suit higher orchard densities. The hull flares away from the shell in a 'banana' fashion and the semi-hard shell reduces kernel quality downgrades and late season bird damage. Self-fertile, early NP pollinator.
- Capella^A - is slightly open tree that is suited traditional orchard densities. The hull flares away from the shell in a 'banana' fashion and hard shell reduces kernel quality downgrades and late season bird damage. Self-fertile, late NP pollinator.
- Maxima^A - is a highly spur bearing tree that is suited to planting in traditional or higher density orchards. The hull flares away from the shell in a 'banana' fashion, semihard shell and has a very large kernel that may be suited to markets where large size attracts premium pricing. Late pollinator for NP.

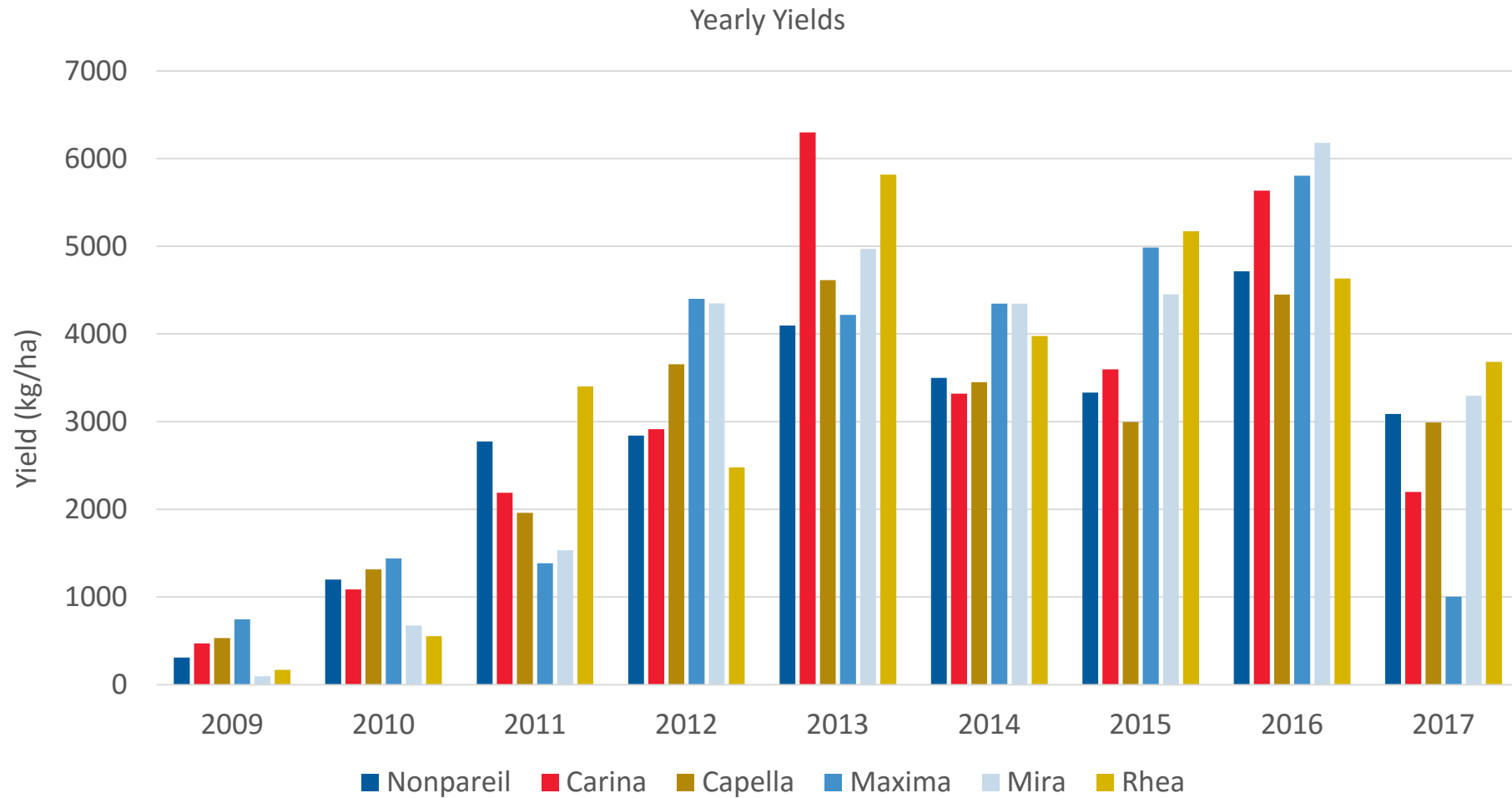
New Australian varieties

- Mira^A - is an upright spur bearing tree that is suited to planting in traditional orchard densities. The hull flares away from the shell in a 'banana' fashion and the semi-hard shell reduces kernel quality downgrades and late season bird damage. Self-fertile, late NP pollinator.
- Rhea^A - is an upright bearing tree that is suited to planting in traditional orchard densities. It is a paper shell and the kernel itself has a hint of marzipan similar to Carmel and may be suitable for inclusion in the Carmel market. Early pollinator for Nonpareil.
- Vela^A – is an upright to spreading tree, spur bearing with high cropping capacity. It is self fertile, papershell and the kernel has a similar appearance and taste profile to Nonpareil. Early pollinator for Nonpareil.

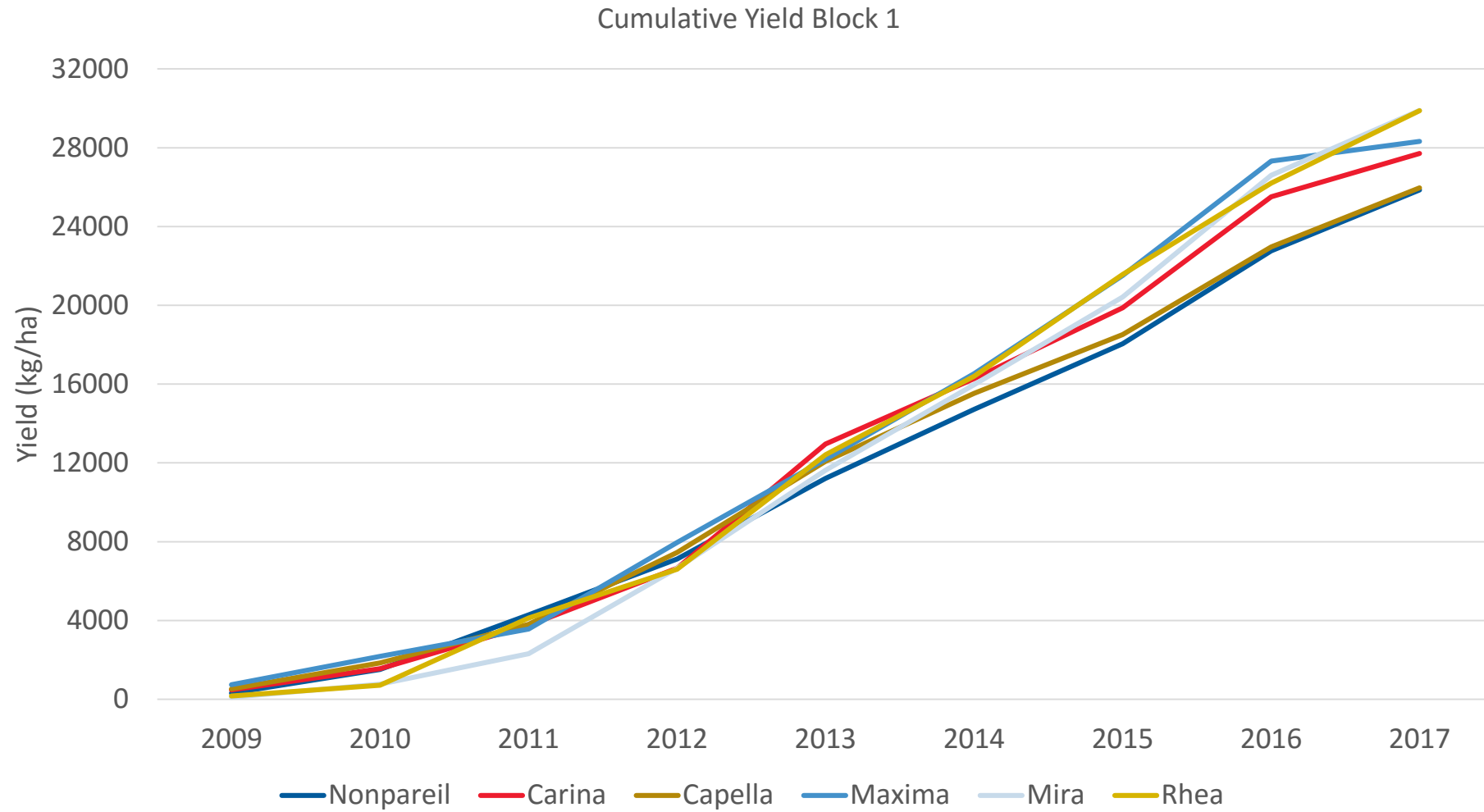
2017 Harvest results – Block 1

Cultivar	Yield Potential kg/ha	Kernel In-shell (g)	Kernel (g)	Crack out (%)
Nonpareil	3088		1.28	28
No. 1 Carina	2197	3.70	1.46	22
No. 2 Capella	2989	4.96	1.43	21
No. 3 Maxima	1003	5.5	2.08	23
No. 5 Mira	3293	4.6	1.5	27
No. 7 Rhea	3680	1.89	1.09	27

Block 1 – Yearly yields



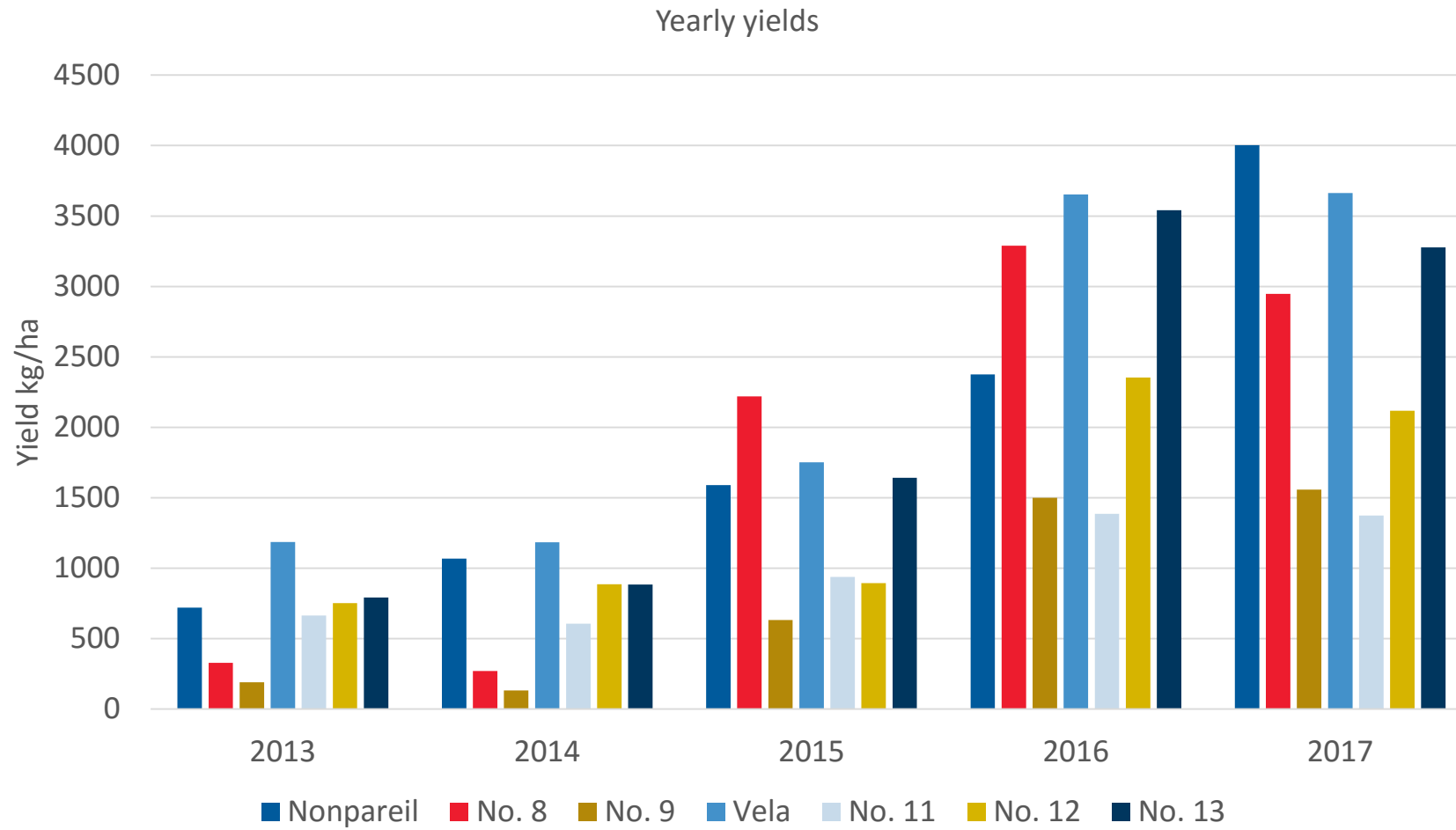
Block 1 – Cumulative yields 2009 - 2017



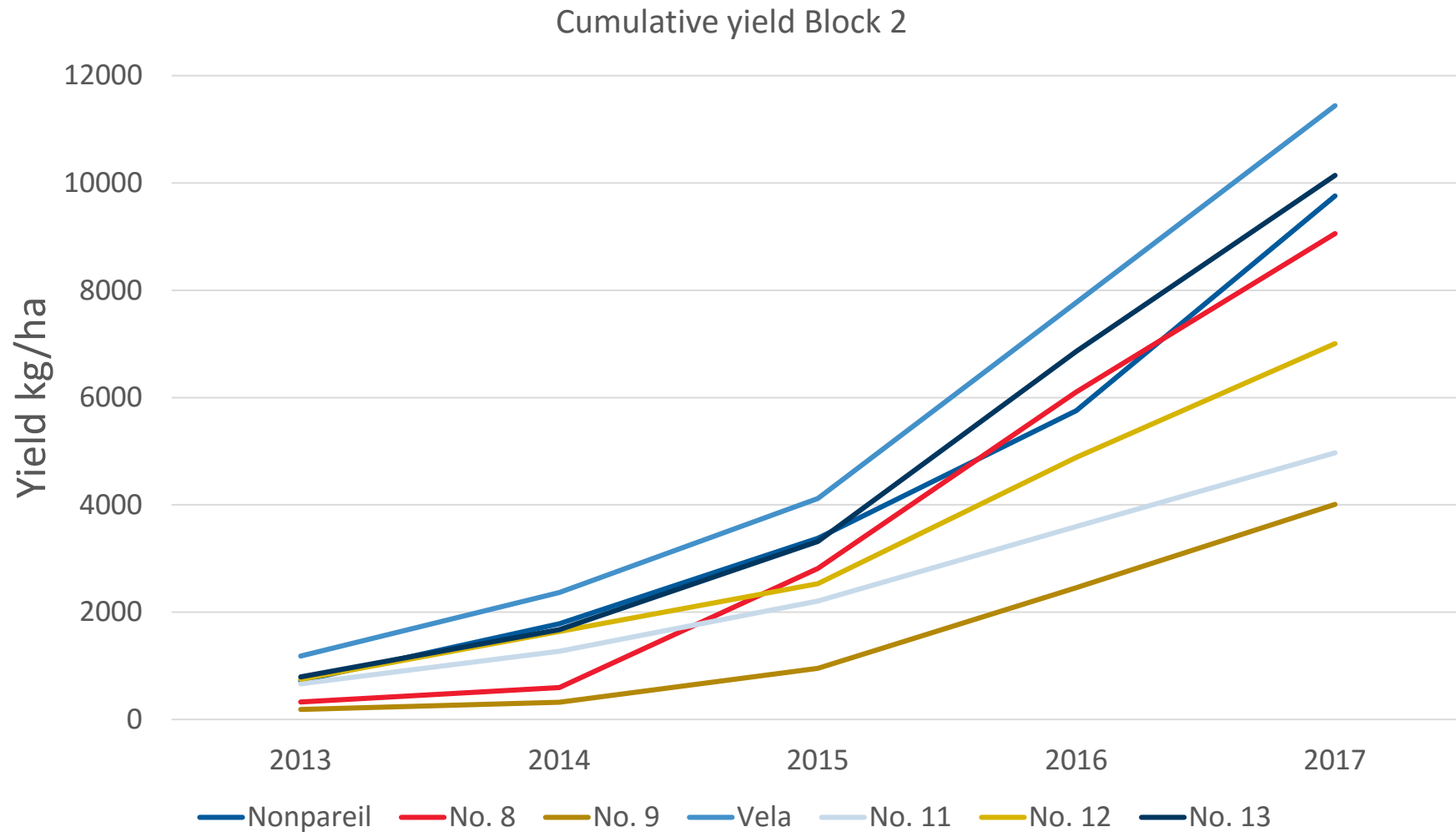
2017 Harvest results – Block 2

Cultivar	Dry fruit wt (g)	Kernel (g)	Crack out (%)	Full Bloom	Yield kg/ha kernel
Nonpareil	4.17	1.25	30.0	17-8-17	4002
No. 8	6.78	1.73	25.5	18-8-17	2947
No. 9	6.89	1.62	23.5	19-8-17	1557
Vela*	5.45	1.68	30.9	12-8-17	3664
No. 11*	4.14	1.44	34.7	12-8-17	1373
No. 12*	6.13	1.93	31.4	11-8-17	2118
No. 13*	6.11	1.38	22.6	20-8-17	3278

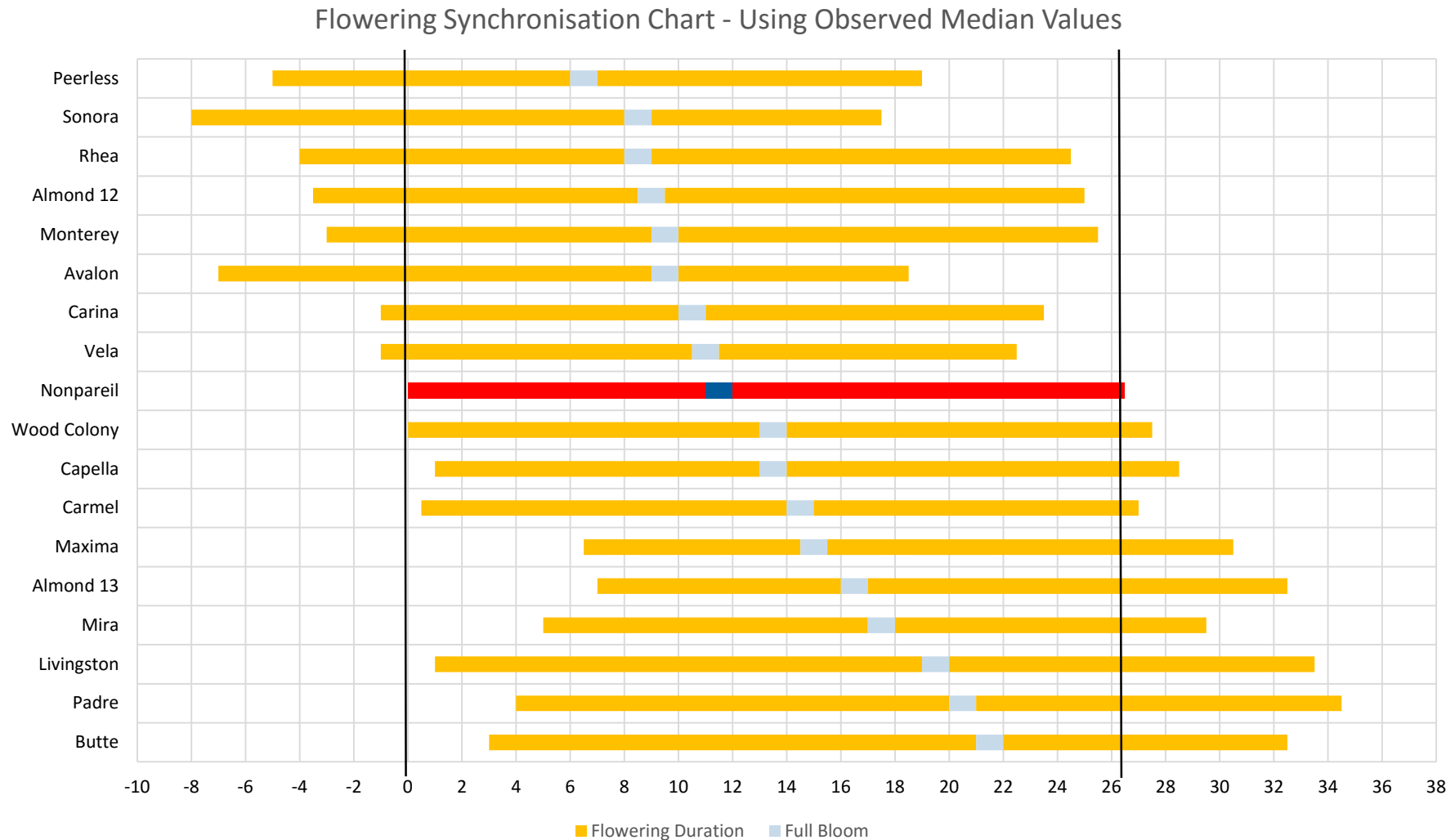
Block 2 – Yearly yields



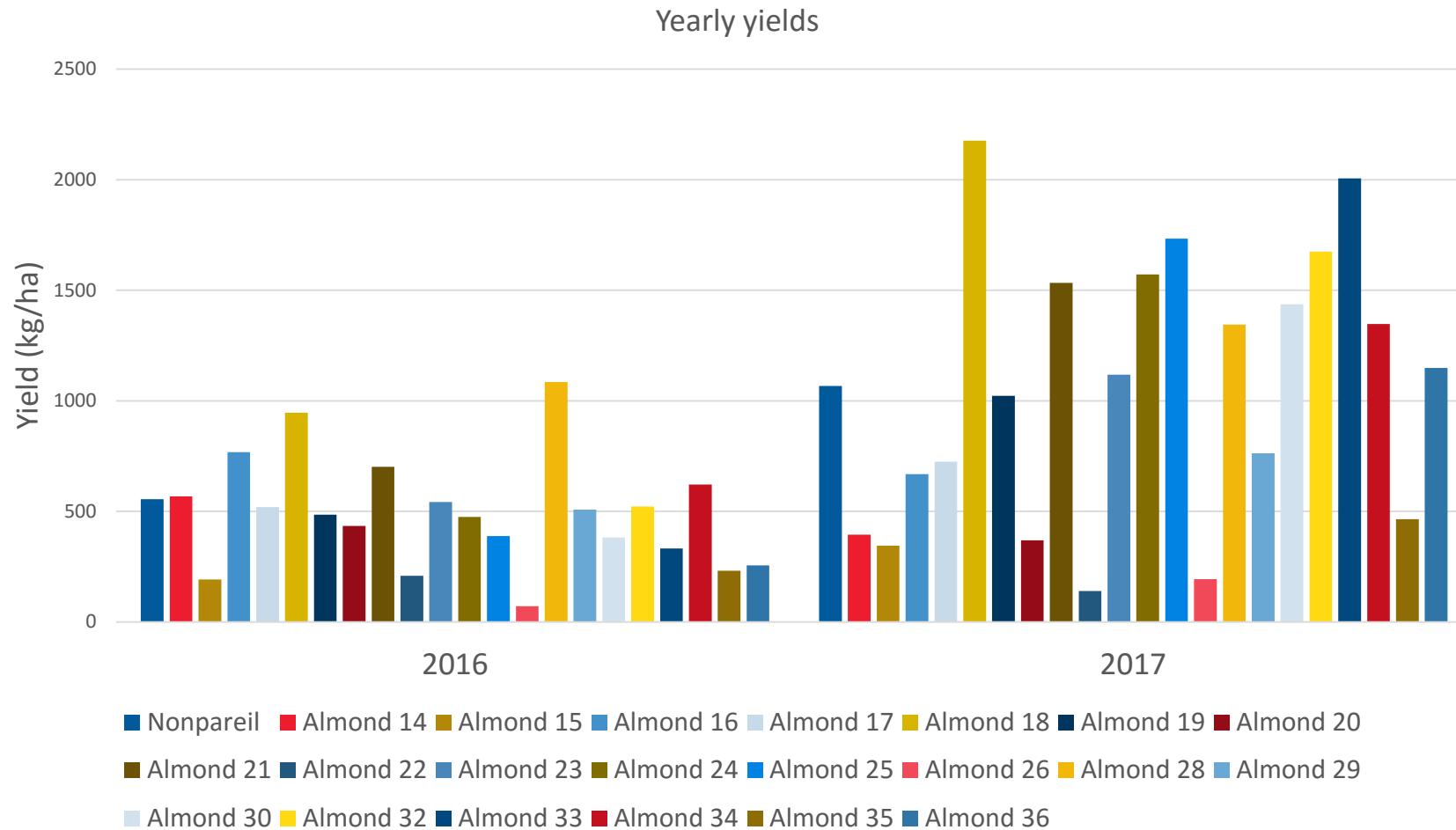
Block 2 – Cumulative yields 2013 - 2017



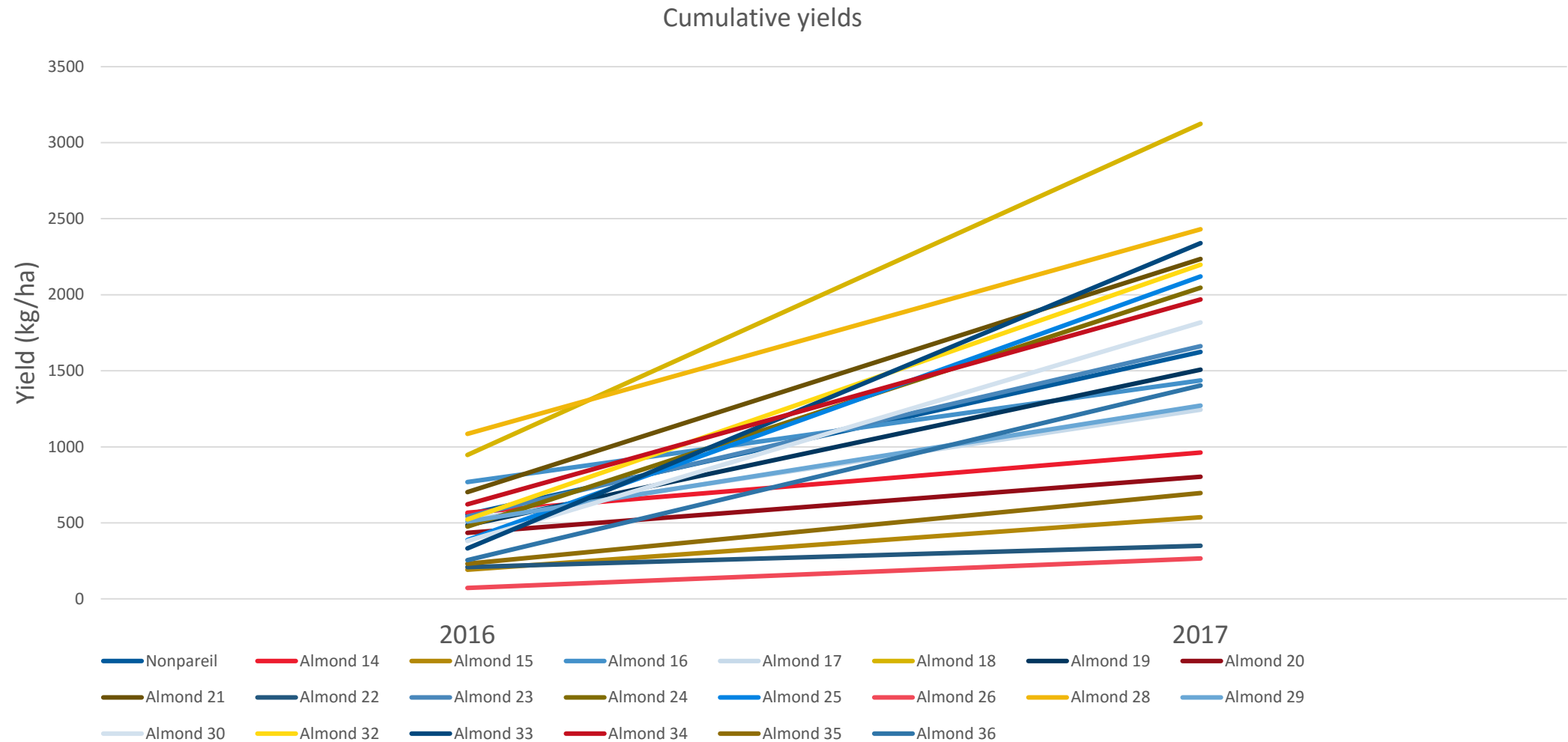
Flowering times 2017



Block 3 – Yearly yields



Block 3 – Cumulative yields 2016 - 2017



2017 Harvest results – Block 3 (best 6)

Cultivar	Dry fruit wt (g)	Kernel (g)	Crack out (%)	Full Bloom	Cumulative Yield (kg/ha kernel)
Nonpareil*	3.82	1.3	34	21/8/17	1788
No. 18	5.12	1.73	33.8	22/8/17	3123
No. 28	7.73	1.66	21.5	17/8/17	2430
No. 33	4.4	1.50	34.2	18/8/17	2339
No. 21 [#]	5.85	1.52	26.0	30/8/17	2236
No. 32	3.85	1.21	31.4	20/8/17	2198
No. 25	3.15	1.41	44.8	19/8/17	2121

- *Nonpareil data from Block 2 equivalent age
- [#]Self-fertile

Almond 25



Tertiary trials 2017 harvest

Century Orchards	2016 (3 rd leaf) kg/ha	2017 (4 th leaf) kg/ha
Nonpareil	980	2230
Carina	1732.3	2193.9
Capella	1277.9	2159.6
Maxima	1938.9	2706.3
Mira	1680	2940.6
Rhea	838.7	3472.7

Commercialisation

- Sales of the PBR varieties have been ongoing since 2016
- 52,206 trees sold in 2016 season
- 105,000 buds delivered in 2017

- Overseas commercialisation

Beyond 2017

- Greater use of molecular markers
- New project application for molecular markers for oil content, Vitamin E, fatty acids, shell hardness
- Next generation of breeding for Sf
- Ongoing evaluation of secondary blocks
- Reliable data figures from tertiary blocks
- PBR extension to cover European countries

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