5th Australian Almond Research & Development Forum & Field Day

AL17005 National Almond Breeding and Evaluation Program

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THE UNIVERSITY of ADELAIDE

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australian almonds
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australian almond
RESEARCH & DEVELOPMENT FORUM & FIELD DAY

Evaluation trials

Dareton

Lindsay Point

Varieties and promising selections from AL12015

- Secondary Block 1: Carina*, Capella*, Maxima, Mira* & Rhea
- Secondary Block 2: Vela* & Almond 13*
- Secondary Block 3: Almond 18, 28, 34, 25, 16

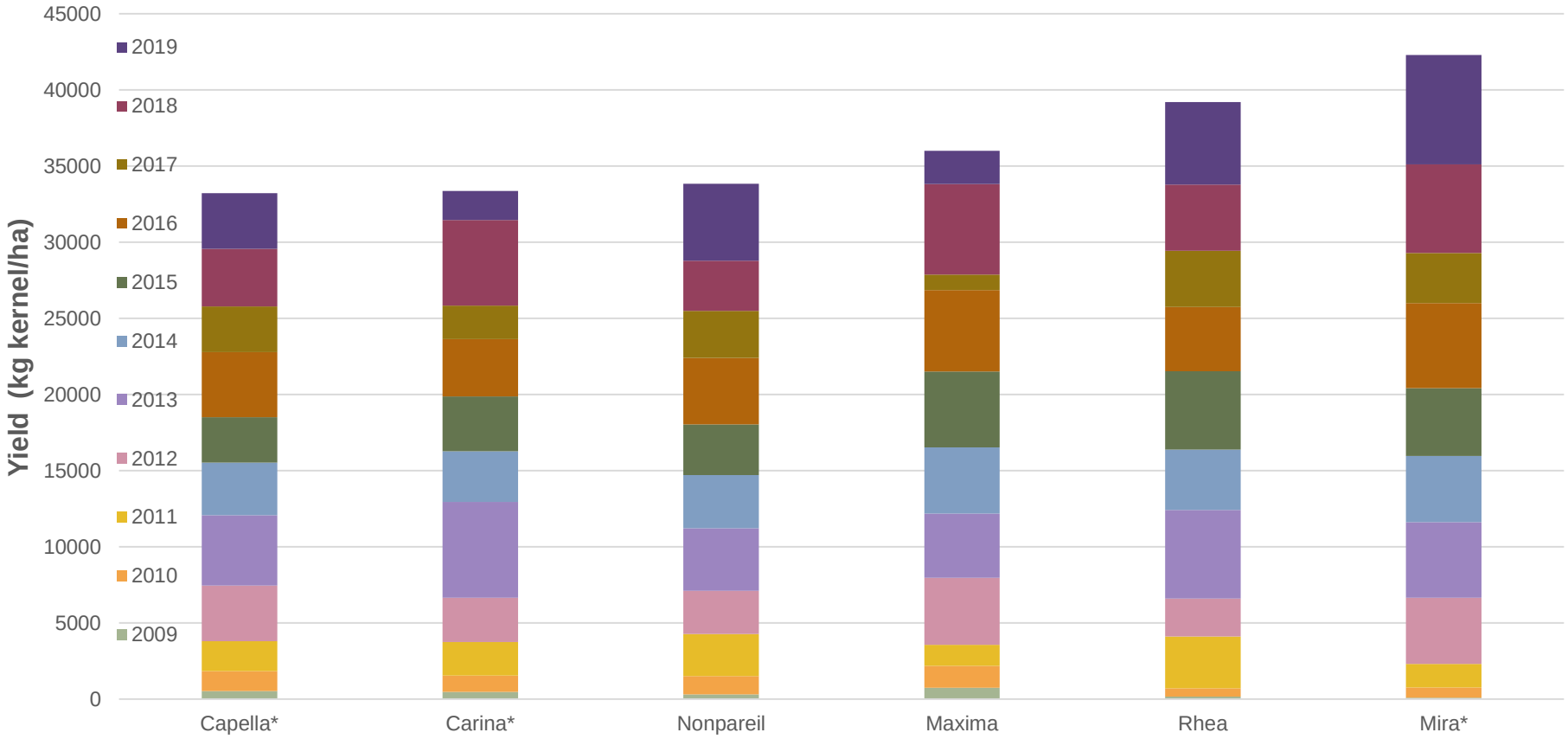
- * Self fertile

2019 Yield results

- Block 1 crackouts (13th leaf)

Variety	nut weight (g)	%double kernel	shelling percentage	kernel wt (g)	Yield kg/ha kernel	comments
Maxima	6.00	0	30.2	1.81	2177	
Capella*	5.10	0	26.1	1.33	3646	butterfly hull
Nonpareil	2.11	0	63.0	1.33	5061	
Mira*	2.93	0	43.5	1.28	5810	butterfly hull
Carina*	3.27	0	41.1	1.34	1898	
Rhea	2.20	0	58.1	1.28	5422	

Block 1 yearly yields

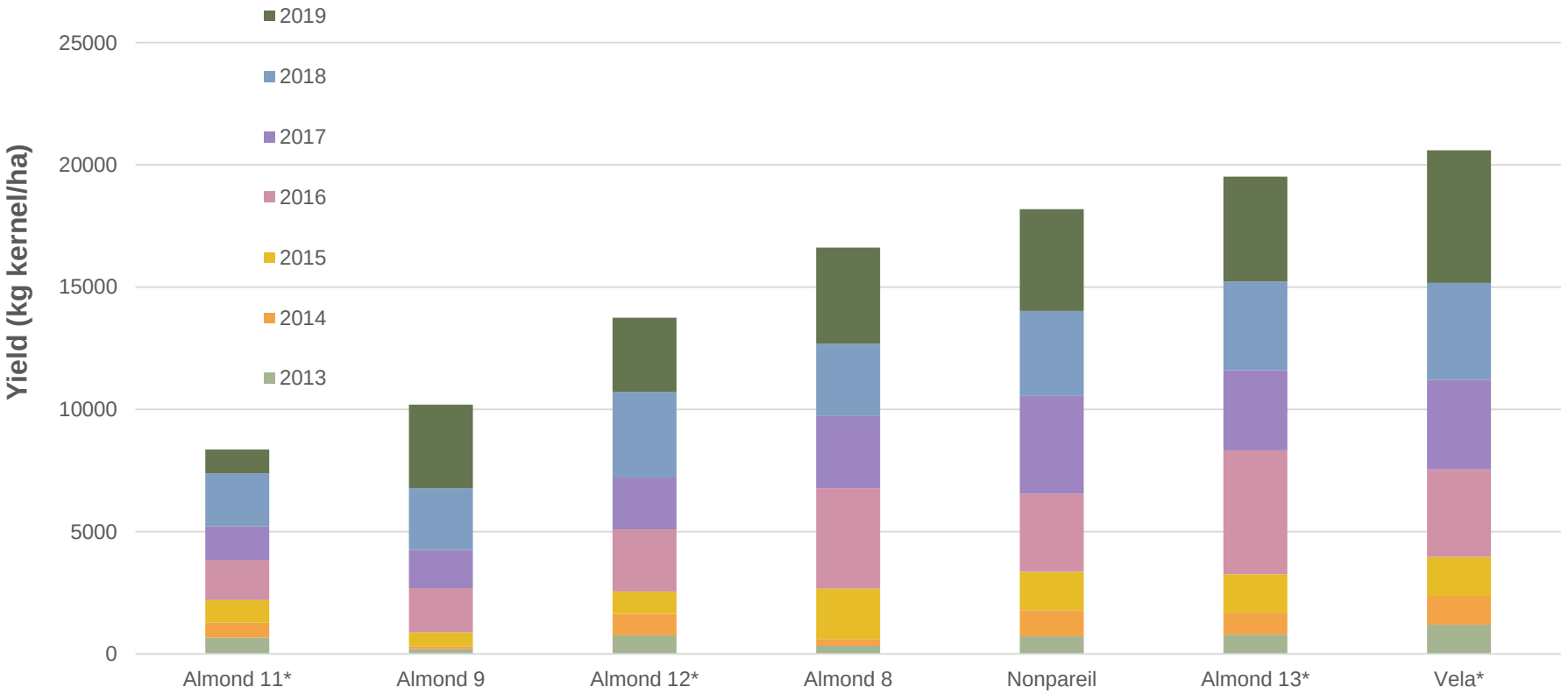


2019 Yield results

- Block 2 crackouts (9th leaf)

Almond tree	PBR name	nut weight (g)	%double kernel	shelling percentage	kernel wt (g)	Yield kg/ha kernel
8		3.89	0	50.9	1.98	3937
9		5.95	0	32.8	1.95	3424
10*	Vela*	3.21	0	53.0	1.70	5434
11*		2.27	0	58.1	1.32	978
12*		4.83	0	47.6	2.30	3041
13*		4.53	0	34.6	1.57	4292
Nonpareil		2.11	0	63.0	1.30	4156

Block 2 yearly yields

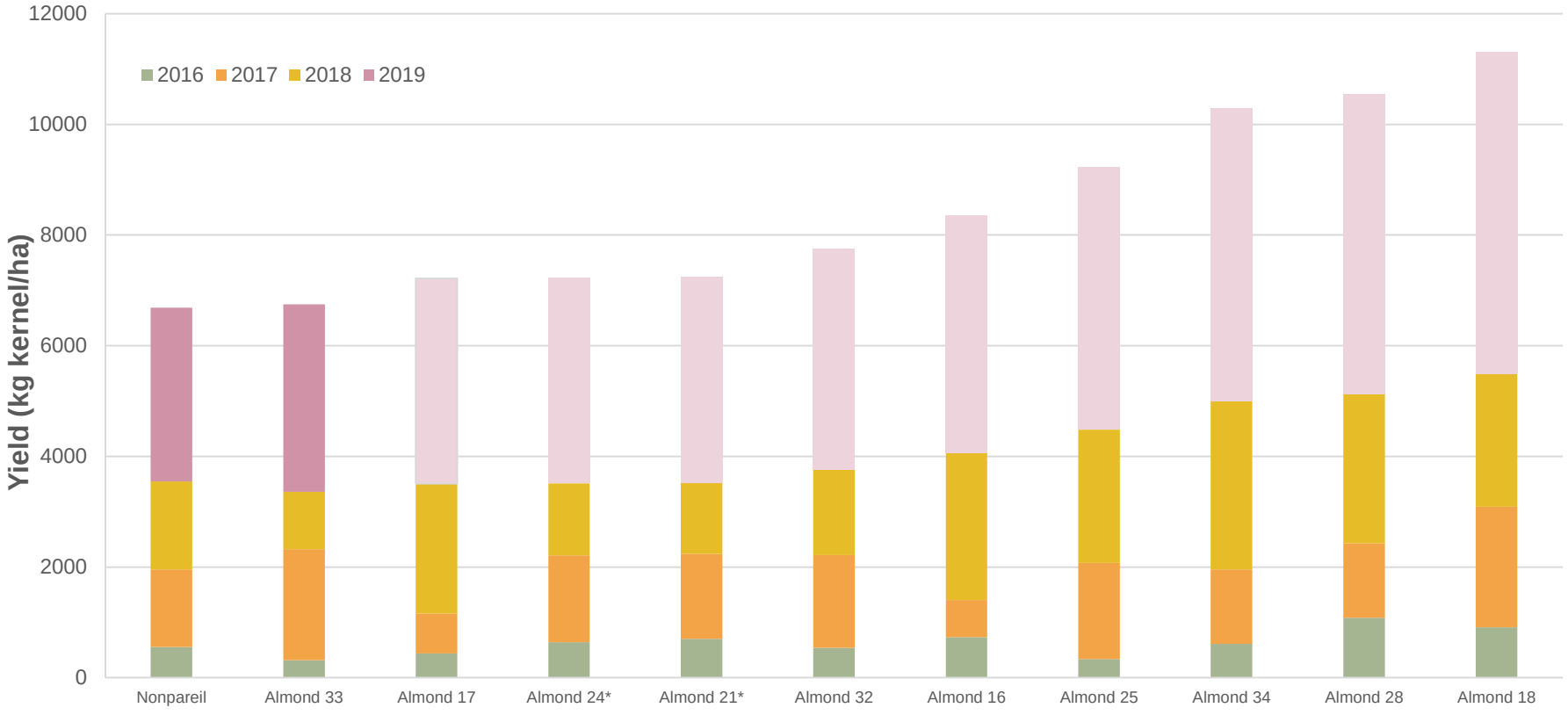


2019 Yield results

- Block 3 crackouts (6th leaf)

Almond tree	nut weight (g)	%double kernel	shelling percentage	kernel wt (g)	Yield kg kernel/ha
16	3.47	0	67.0	2.33	4300
17	3.20	0	57.8	1.85	3709
18	2.63	0	65.8	1.73	5813
21*	2.70	0	47.6	1.29	3724
24*	3.43	0	41.0	1.41	3713
25	2.27	0	64.7	1.47	4742
28	5.67	0	34.7	1.97	5417
32	1.79	0	75.6	1.35	3986
33	2.15	9	60.5	1.30	3391
34	2.33	14	65.7	1.53	5293
Nonpareil	2.11	0	63	1.30	3140

Block 3 yearly yields



Tertiary trial yields (6th leaf)

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Variety	Boundary Bend	Lindsay Point (260 trees/ha)	Loxton (260 trees/ha)
	kg/ha kernel		
Capella	695	1971	3872
Carina	1661	1529	3614
Maxima	1649	2528	4071
Mira	3295	2371	3750
Rhea	2174	1397	3388
Nonpareil	3221	2500	3780

Testing for self-fertility

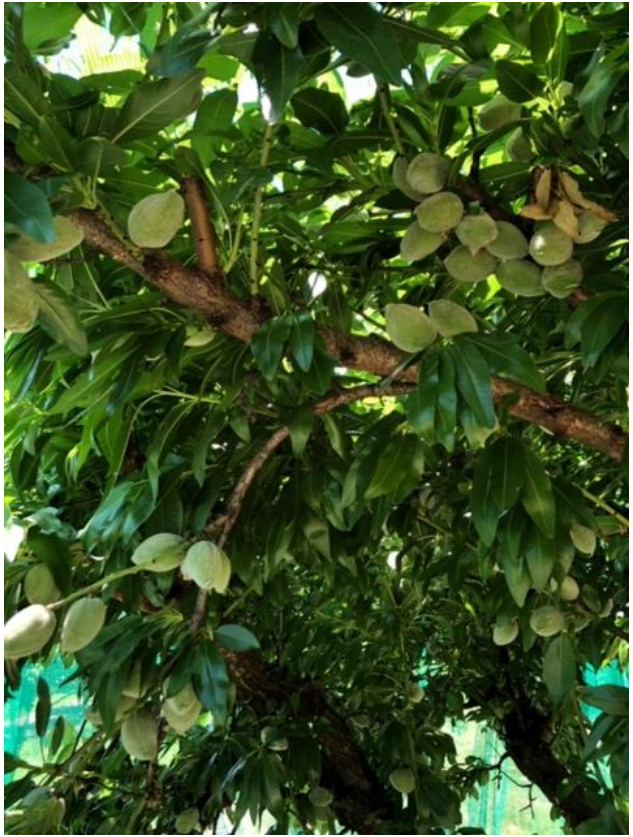
Testing for self-fertility

Waite campus
31/7/19

Testing for self-fertility

10/9/19

Testing for self-fertility



22/10/19

Next stages

- Breeding for 3 years
- Germplasm at Waite, Angle Vale, Lindsay Point
- Aiming for 4000 – 5000 seeds per year

Next stages

- Crosses designed for self-fertility
- Depending on the alleles of the parents, some crosses can produce 100% SF progeny

eg Chellaston x Carina

S_7S_{23} x S_7S_f

can only produce progeny with $S_{23}S_f$ or S_7S_f

2019 Crosses

Female	Male	Target No.
Somerton	Mira	100
Somerton	Carina	100
Somerton	Steliette	100
Chellaston	Carina	100
Chellaston	Vayro	100
Chellaston	Mira	100
Keanes	Carina	100
Keanes	Steliette	100
Keanes	Marta	100
Carina	Marta	100
Carina	Somerton	100
Carina	Chellaston	100
Carina	Keanes	100
Nonpareil	Steliette	100
Nonpareil	Steliette	100
Nonpareil	Carina	100
Nonpareil	Marta	100

Female	Male	Target No.
Maxima	Steliette	100
Maxima	Vayro	100
Maxima	Marta	100
Maxima	Carina	100
Mira	Supernova	100
Mira	Vayro	100
Mira	Marta	100
Mira	Keanes	100
12-350	Maxima	100
12-350	Nonpareil	100
12-350	Chellaston	100
12-350	Johnston	100

Female	Male	Target No.
Vayro	Nonpareil	100
Vayro	Chellaston	100
Vayro	Keanes	100
Vayro	Somerton	100
Steliette	Chellaston	100
Steliette	Maxima	100
Steliette	Keanes	100
Steliette	Johnston	100
Marta	Fritz	100
Marta	Chellaston	100
Marta	Monterey	100
Marta	Johnston	100

Next stages

- Crosses designed for disease resistance
- Nonpareil 👍 bacterial spot, 👎 hull rot & leaf rust
- Carmel 👍 bacterial spot 👎 leaf rust
- Future molecular marker development?

Thank you