Improving the Red Color and Fruit Quality of 'Kent' Mango Fruit by Pruning and Preharvest Spraying of Prohydrojasmon or Abscisic Acid

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Supplementary file

Table S1. Pre-harvest application of prohydrojasmon (PDJ) or Abscisic acid (ABA) on ripening parameters.

				TSS			Acids			Firmness	
			Control (Untreated)	PDJ	ABA	Control (untreated)	PDJ	ABA	Control (Untreated)	PDJ	ABA
		Harvest	8.2±0.4a	7.9±0.2a	8.0±0.3a	0.64±0.04a	0.57±0.02ab	0.64±0.06a	120.6±5.1a	114.9±8.3a	121.5±4.8a
anopy	Opened trees	After cold Storage	16.4±1.2a	17.5±0.7a	17.3±0.2a	0.77±0.02a	0.77±0.08a	0.62±0.03ab	69.2±13.2ab	46.3±7.5b	42.0±1.8b
Inside canopy		After shelf Life	17.3±0.2a	17.4±0.3a	16.7±0.7a	0.32±0.01bc	0.44±0.05ab	0.28±0.03b	14.2±1.0a	12.4±1.2ab	11.7±0.6ab
_	Closed trees	After shelf Life	16.1±0.3a	15.4±0.3a	-	0.33±0.03a	0.24±0.01a	-	20.9±1.2a	15.9±0.8b	-
<u> </u>		Harvest	7.6±0.2a	8.5±0.6a	8.1±0.2a	0.47±0.07b	0.61±0.05ab	0.62±0.09ab	112.3±2.8a	122.1±8.4a	124.0±4.5a
canopy	Opened trees	After cold Storage	16.0±0.7a	17.1±1.1a	16.9±0.5a	0.74±0.02ab	0.78±0.08a	0.64±0.03a	81.0±7.9ab	67.1±10.0ab	94.8±7.1a
Outside		After shelf Life	17.3±0.6a	17.8±0.7a	16.9±0.6a	0.42±0.06ab	0.46±0.04a	0.28±0.00b	14.0±1.6a	12.9±0.6ab	11.2±0.8b
Ō	Closed trees	After shelf Life	16.4±0.8a	15.7±0.9a	-	0.32±0.05a	0.23±0.04a	-	15.3±0.6b	11.6±0.4b	-

¹Brix = percentage of TSS

²Acidity (percentage)

³Fruit firmness in Newton

⁴Different letters are significantly different within each time point (p < 0.05).



Figure S1. Representative picture of pruning results. Two 'Kent' mango orchards grown in the same area with 20 years old trees were pruned in two different manners, which lead to open and closed trees. (A) The orchard (open trees) was pruned to open the trees and fruit to sunlight by removing large branches. (B) The orchard (closed trees) was pruned by an automatic disc machine that pruned the trees to square shapes.

Connecting Lette					Red	Surfa	ce at F	arve	st (open trees)
evel			Mean						
Regular Sprayer(out)	A		.111111						
AirJets Sprayer (out)	AB		.348837						
control untreated(out)	В		.116279						
Regular Sprayer(in)			.304348						
AirJets Sprayer(in)		-	.790698						
control untreated (in)		-	.456522						
evels not connected b	/ same	letter are	signific	antly differen	t.				
Ordered Differen	ces R	eport							
Level	- Lev	el		Difference	Std Err Dif	Lower CL	Upper CL	p-Value	
Regular Sprayer(out)	contri	ol untreat	ed (in)	25.65459	2.213934	21.2951	30.01411	<.0001"	1
AirJets Sprayer (out)	contr	ol untreat	ed (in)	23.89232	2.239809	19.4818	28.30279	<.0001"	
Regular Sprayer(out)	AirJet	s Sprayer	in)	23.32041	2.251801	18.8863	27.75450	<.0001*	
AirJets Sprayer (out)	AirJet	s Sprayer	in)	21.55814	2.277246	17.0739	26.04233	<.0001*	
control untreated(out)	contri	ol untreat	ed (in)	20.65976	2.239809	16.2493	25.07023	<.0001"	
Regular Sprayer(out)	Regul	ar Spraye	r(in)	18.80676	2.213934	14.4472	23.16629	<.0001"	
control untreated(out)	AirJet	s Sprayer	in)	18.32558	2.277246	13.8414	22.80977	<.0001"	
AirJets Sprayer (out)	Regul	ar Spraye	r(in)	17.04449	2.239809	12.6340	21.45497	<.0001*	
control untreated(out)	Regul	ar Spraye	r(in)	13.81193	2.239809	9.4015	18.22241	<.0001*	
Regular Sprayer(in)	contra	ol untreat	ed (in)	6.84783	2.201736	2.5123	11.18333	0.0021*	
Regular Sprayer(out)	contra	ol untreat	ed(out)	4.99483	2.251801	0.5607	9.42892	0.0274*	
Regular Sprayer(in)	AirJet	s Sprayer	in)	4.51365	2.239809	0.1032	8.92413	0.0449*	
AirJets Sprayer (out)	contri	ol untreat	ed(out)	3.23256	2.277246	-1.2516	7.71675	0.1570	
AirJets Sprayer(in)	contra	ol untreat	ed (in)	2.33418	2.239809	-2.0763	6.74465	0.2983	
Regular Sprayer(out)	Alabak	s Sprayer	1	1.76227	2.251801	-2.6718	6.19636	0.4346	7 m : /: : : : : :

Red Surface at Harvest (Closed trees)

Connecting Letters Report С

lets Sprayer(in)

 Mean

 34.255319

 27.900000

 C
 11.969697

 D
 2.285714

 D
 2.000000

 D
 0.833333

 me letter are significat
 Level AirJets Sprayer (out) Regular Sprayer(out) control untreated(out) A в control untreated (in) AirJets Sprayer(in) Regular Sprayer(in) ed by sa re significa ntly c Ordered Differences Report

Difference Std Err Dif Lower CL Upper CL p-Value 33.42199 1.677140 30.1179 36.7260 <0001*</td> 32.2532 1.762465 28.7611 35.7250 <0001*</td> 31.96960 1.762465 28.4761 35.7250 <0001*</td> 25.06067 1.653225 23.804* 35.4439 <0001*</td> 25.9000 1.70477 22.4762 29.3284* <0001*</td> 22.6582 1.74077 22.4169 29.3284* <0001*</td> 22.6582 1.74077 22.4169 29.4349* <0001*</td> 22.6582 1.74077 22.4169 2.94.439* <001*</td> 15.9300 1.77155 12.4403 14.4001* <0001*</td> 9.63901 9.16511 5.1094 13.4554* <0001*</td> 9.63303 1.91551 5.0137 <001*</td> <001*</td> 9.63303 1.91551 5.0137 <001*</td> <01*</td> 9.6333 1.91564* 2.3199 5.16174 <0001*</td> 9.5352</t - Level Regular Sprayer(in) AirJets Sprayer(in) control untreated (in) Regular Sprayer(in) AirJets Sprayer(in) Level Sprayer (out) Sprayer (out) Sprayer (out) ar Sprayer(out) rer(out) control uni rayer (out) Regu AirJe ated (in) Regular Spr er(in) Regular Spr

E Nonparametric Comparisons For Each Pair Using Wilcoxon Method

q* 1.95996	Alpha 0.05	Re	d Intensity	at Harvest	(open tre	ees)
Level		- Level	Score Mean Difference	Std Err Dif	z	p-Value
Regular Spra	yer(out)	control untreated (in)	38.6640	5.409630	7.14726	<.0001*
control untro	eated(out)	control untreated (in)	38.6200	5.400638	7.15102	<.0001*
Regular Spra	yer(out)	AirJets Sprayer(in)	32.7746	5.315335	6.16605	<.0001*
control untro	eated(out)	AirJets Sprayer(in)	32.4524	5.304120	6.11833	<.0001*
Regular Spra	yer(out)	Regular Sprayer(in)	28.4430	5.433280	5.23496	<.0001*
Regular Spra	yer(in)	control untreated (in)	14.5870	5.199117	2.80566	0.0050*
Regular Spra	yer(in)	AirJets Sprayer(in)	6.7184	5.175268	1.29818	0.1942
Regular Spra	yer(out)	control untreated(out)	3.7778	5.336048	0.70797	0.4790
Regular Spra	yer(out)	AirJets Sprayer (out)	-5.9576	5.329188	-1.11792	0.2636
control untr	eated (in)	AirJets Sprayer(in)	-7.6977	4.976798	-1.54672	0.1219
control untro	eated(out)	AirJets Sprayer (out)	-10.1189	5.311577	-1.90506	0.0568
Regular Spra	ayer(in)	control untreated(out)	-27.4539	5.420116	-5.06518	<.0001*
Regular Spra	yer(in)	AirJets Sprayer (out)	-29.4267	5.388511	-5.46101	<.0001*
AirJets Spray	ver(in)	AirJets Sprayer (out)	-32.5692	5.258491	-6.19364	<.0001*
control untr	eated (in)	AirJets Sprayer (out)	-37.6833	5.348988	-7.04493	<.0001*

G Nonparametric Comparisons For Each Pair Using Wilcoxon Method

q* 1.95996	Alpha 0.05	Re	ed Intensity	at Harvest	(Closed	trees)
Level		- Level	Score Mean Difference	Std Err Dif	z	p-Value
Regular Spray	yer(out)	Regular Sprayer(in)	45.3648	5.353153	8.47440	<.0001*
Regular Spray	yer(out)	control untreated (in)	43.7527	5.440093	8.04264	<.0001*
Regular Spray	yer(out)	AirJets Sprayer(in)	43.5586	5.446712	7.99723	<.0001*
Regular Spray	yer(out)	control untreated(out)	31.9275	5.414774	5.89637	<.0001*
control untre	ated(out)	control untreated (in)	27.7773	4.917452	5.64871	<.0001*
control untre	ated(out)	AirJets Sprayer(in)	26.2029	4.926880	5.31836	<.0001*
control untre	ated (in)	AirJets Sprayer(in)	-1.9773	3.827448	-0.51660	0.6054
Regular Spray	yer(in)	control untreated (in)	-4.0720	3.241437	-1.25622	0.2090
Regular Spray	yer(in)	AirJets Sprayer(in)	-6.1891	3.451825	-1.79299	0.0730
Regular Spray	yer(out)	AirJets Sprayer (out)	-10.9796	5.524915	-1.98728	0.0469*
Regular Spray	yer(in)	control untreated(out)	-32.3851	4.770586	-6.78850	<.0001*
control untre	ated(out)	AirJets Sprayer (out)	-35.7718	5.332935	-6.70771	<.0001*
AirJets Spraye	er(in)	AirJets Sprayer (out)	-43.3968	5.338609	-8.12887	<.0001*
control untre	ated (in)	AirJets Sprayer (out)	-43.5198	5.330229	-8.16472	<.0001*

в

Connecting Letters Report Level Airlets Sprayer (out) A Regular Sprayer(out) A control untreated(out) B Paralta Sprayer(out) C Mean 31.279070 30.657895 21.842105 15.370370 Regular Sprayer(in) AirJets Sprayer(in) с cont Level Ord Leve Airbe Regu Airbe Regu Cont Airbe Regu Regu Regu Regu Regu Regu Airbe Airbe

Red Surface at Shelf life (open trees)

Red Surface at Shelf life (Closed trees)

rJets Sprayer(in)	D 8.3	292683						
ntrol untreated (in)	D 6.6	566667						
els not connected b	same letter are :	ignificantly	differen	t.				
rdered Differen	es Report							
vel	- Level	Dif	ference	Std Err Dif	Lower CL	Upper CL	p-Value	
Jets Sprayer (out)	control untreated (in)		4.61240	2.804103	19.0861	30.13874	<.0001*	1
gular Sprayer(out)	control untreate	d (in) 2	3.99123	2.890512	18.2946	29.68787	<.0001*	
Jets Sprayer (out)	AirJets Sprayer(in	1) 2	2.98639	2.768006	17.5312	28.44159	<.0001*	
gular Sprayer(out)	AirJets Sprayer(in	1) 2	2.36521	2.855508	16.7376	27.99286	<.0001*	
rJets Sprayer (out)	Regular Sprayer(in) 1	5.90870	3.113769	9.7721	22.04533	<.0001*	
gular Sprayer(out)	Regular Sprayer(in) 1	5.28752	3.191806	8.9971	21.57795	<.0001*	
ntrol untreated(out)	control untreate	d (in) 1	5.17544	2.890512	9.4788	20.87208	<.0001*	
ntrol untreated(out)	AirJets Sprayer(in	n) 1	3.54942	2.855508	7.9218	19.17707	<.0001*	
rJets Sprayer (out)	control untreate	d(out)	9.43696	2.823384	3.8726	15.00131	0.0010*	
gular Sprayer(out)	control untreate	d(out)	8.81579	2.909221	3.0823	14.54930	0.0027*	
gular Sprayer(in)	control untreate	d (in)	8.70370	3.174763	2.4469	14.96054	0.0066*	
gular Sprayer(in)	AirJets Sprayer(in	n)	7.07769	3.142926	0.8836	13.27178	0.0253*	
ntrol untreated(out)	Regular Sprayer(in)	6.47173	3.191806	0.1813	12.76216	0.0438*	
rJets Sprayer(in)	control untreate	d (in)	1.62602	2.836444	-3.9641	7.21610	0.5671 /	
Jets Sprayer (out)	Regular Sprayer(out)	0.62118	2.823384	-4.9432	6.18552	0.8261	

Connecting Letters Report Level Airlets Sprayer (out) A Regular Sprayer(out) B control untreated(out) C D

Mean 37.962963 27.826087 11.250000 control untreated(out) AirJets Sprayer(in) control untreated (in) Regular Sprayer(in) Levels not connected by 11.250000 3.488372 2.840909 2.142857 DDD

ected by s re significa Ordered Differences Report

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value	
AirJets Sprayer (out)	Regular Sprayer(in)	35.82011	1.968976	31.9411	39.69912	<.0001*	
AirJets Sprayer (out)	control untreated (in)	35.12205	1.951387	31.2777	38.96642	<.0001*	
AirJets Sprayer (out)	AirJets Sprayer(in)	34.47459	1.959996	30.6133	38.33591	<.0001*	
AirJets Sprayer (out)	control untreated(out)	26.71296	1.988144	22.7962	30.62974	<.0001*	1
legular Sprayer(out)	Regular Sprayer(in)	25.68323	1.703571	22.3271	29.03938	<.0001*	
legular Sprayer(out)	control untreated (in)	24.98518	1.683210	21.6691	28.30121	<.0001*	
egular Sprayer(out)	AirJets Sprayer(in)	24.33771	1.693184	21.0020	27.67340	<.0001*	1
egular Sprayer(out)	control untreated(out)	16.57609	1.725690	13.1764	19.97581	<.0001*	
irJets Sprayer (out)	Regular Sprayer(out)	10.13688	1.935187	6.3244	13.94932	<.0001*	C C
ontrol untreated(out)	Regular Sprayer(in)	9.10714	1.763497	5.6329	12.58135	<.0001*	
ontrol untreated(out)	control untreated (in)	8.40909	1.743836	4.9736	11.84456	<.0001*	
ontrol untreated(out)	AirJets Sprayer(in)	7.76163	1.753465	4.3072	11.21607	<.0001*	
irJets Sprayer(in)	Regular Sprayer(in)	1.34551	1.731701	-2.0661	4.75708	0.4379	
ontrol untreated (in)	Regular Sprayer(in)	0.69805	1.721950	-2.6943	4.09041	0.6856	
AirJets Sprayer(in)	control untreated (in)	0.64746	1.711675	-2.7247	4.01958	0.7056	

F Nonparametric Comparisons For Each Pair Using Wilcoxon Method

q *	Alpha	Re	d Intensity a	at Shelf life	open tr	ees)
1.95996	0.05	110			(open a	/
Level		- Level	Score Mean Difference	Std Err Dif	z	p-Value
Regular Spra	yer(out)	control untreated (in)	32.0054	4.997755	6.40395	<.0001*
control untro	eated(out)	control untreated (in)	29.4615	4.988832	5.90550	<.0001*
Regular Spra	yer(out)	AirJets Sprayer(in)	27.0010	5.069981	5.32565	<.0001*
control untro	eated(out)	AirJets Sprayer(in)	24.7154	5.071913	4.87300	<.0001*
Regular Spra	yer(out)	Regular Sprayer(in)	15.7361	4.942518	3.18383	0.0015*
Regular Spra	yer(in)	control untreated (in)	15.4581	4.866814	3.17622	0.0015*
Regular Spra	yer(in)	AirJets Sprayer(in)	11.2604	4.965573	2.26769	0.0233*
Regular Spra	yer(out)	control untreated(out)	3.2213	4.952788	0.65041	0.5154
control untro	eated (in)	AirJets Sprayer(in)	-3.4772	4.847889	-0.71726	0.4732
Regular Spra	yer(out)	AirJets Sprayer (out)	-3.5692	5.025854	-0.71016	0.4776
control untro	eated(out)	AirJets Sprayer (out)	-7.3834	5.062319	-1.45851	0.1447
Regular Spra	yer(in)	control untreated(out)	-13.0353	4.965695	-2.62508	0.0087*
Regular Spra	yer(in)	AirJets Sprayer (out)	-18.7052	5.080485	-3.68178	0.0002*
AirJets Spray	er(in)	AirJets Sprayer (out)	-29.7073	5.194477	-5.71902	<.0001*
control untro	eated (in)	AirJets Sprayer (out)	-34.1300	5.132604	-6.64964	<.0001*

H Nonparametric Comparisons For Each Pair Using Wilcoxon Method

q* 1.95996 Alpha 0.05 Red Intensity at Shelf life (Closed trees)

Level	- Level	Score Mean Difference	Std Err Dif	z	p-Value
Regular Sprayer(out)	control untreated (in)	43.4338	5.361629	8.10086	<.0001*
Regular Sprayer(out)	Regular Sprayer(in)	42.4160	5.262992	8.05929	<.0001*
Regular Sprayer(out)	AirJets Sprayer(in)	41.8453	5.339780	7.83652	<.0001*
Regular Sprayer(out)	control untreated(out)	36.9239	5.278605	6.99501	<.0001*
control untreated(out)	control untreated (in)	25.4764	5.056094	5.03875	<.0001*
control untreated(out)	AirJets Sprayer(in)	21.4015	5.016924	4.26585	<.0001*
Regular Sprayer(in)	control untreated (in)	-0.0233	4.434057	-0.00526	0.9958
control untreated (in)	AirJets Sprayer(in)	-4.4341	4.643921	-0.95482	0.3397
Regular Sprayer(in)	AirJets Sprayer(in)	-4.5502	4.559012	-0.99807	0.3182
Regular Sprayer(out)	AirJets Sprayer (out)	-9.0560	4.886922	-1.85312	0.0639
Regular Sprayer(in)	control untreated(out)	-26.7942	4.905115	-5.46250	<.0001*
control untreated(out)	AirJets Sprayer (out)	-40.2097	5.195328	-7.73959	<.0001*
Regular Sprayer(in)	AirJets Sprayer (out)	-42.6271	5.169979	-8.24512	<.0001*
AirJets Sprayer(in)	AirJets Sprayer (out)	-42.9540	5.254361	-8.17493	<.0001*
control untreated (in)	AirJets Sprayer (out)	-44.1556	5.276216	-8.36879	<.0001*

Connecting Letter	s Report							Connecting Lette	ers Report					
Level control untreated (in) Regular Sprayer(in) Air/ets Sprayer(in) control untreated(out) Regular Sprayer(out) Air/ets Sprayer (out) Levels not connected by	B 95.09507 B 87.29099 C 50.61164 C D 31.37184 D 24.77571	Color (Hue) at Harvest (open trees) control untreated (m) A 91.256907 55.0507 55.0507 Aintets Serayer(m) 8 61.56001 87.2509 50.61164 Regular Serayer(m) 8 C 51.71000 C 31.37164 Regular Serayer(out) D 27.245795 Aintets Serayer(out) D 27.245795 Letter are significantly different. Levis not connected by same letter are significant Levis not connected by same letter are significant				001 000 900 9795 379								
Ordered Differen	es Report							Ordered Differen	ices Report					
Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value		Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL p-Value	
control untreated (in) control untreated (in) Regular Sprayer(in) Airlets Sprayer(in) Airlets Sprayer(in) control untreated (in) Airlets Sprayer(in) control untreated (ini) control untreated (out) control untreated(out)	AirJets Sprayer (out) Regular Sprayer(out) AirJets Sprayer(in)	101.1340 94.5379 75.2981 70.3194 63.7232 62.5153 55.9191 44.4834 38.6188 36.6793 30.8147 25.8359 19.2398 7.8041 6.5961	11.43215 11.43215 11.43215 10.80999 10.80999 11.09082 10.80999 11.43215 11.09082 11.09082 11.09082 11.09082 11.09082 11.09082	78.1482 71.5520 52.3122 48.5844 41.9683 40.2157 33.6196 22.7485 15.6329 14.3798 8.3762 3.5364 -3.0598 -13.9309 -15.7035	117.5238 98.2840 92.0543 85.4582 84.8149 78.2187 66.2184 61.6047 58.9789 53.2532 48.1355 41.5394 29.5390	<.0001* <.0001* <.0001* <.0001* <.0001* <.0001* <.0001* 0.0002* 0.0015* 0.0081* 0.0084* 0.0		control untreated (in) control untreated (in) airlets Sprayer(in) control untreated (in) Airlets Sprayer(in) Regular Sprayer(in) control untreated (out) control untreated(out) Airlets Sprayer(in) Airlets Sprayer(in) Regular Sprayer(in) Regular Sprayer(in)		70.53787 64.02045 46.81935 39.55617 34.35221 30.98170 29.66825 24.46429 23.71852 17.20111 17.15110 9.88792 7.26318 6.51742	7.095540 6.615544 6.615544 7.256041 6.439097 6.787405 7.095540 6.615544 7.256041 6.787405 6.787405 6.615544 6.615544 7.256041	56.2713 50.7190 33.5179 26.2804 26.6095 20.7052 16.7152 16.3668 9.1293 3.5541 3.5041 -3.4135 -6.0383 -8.0718	84.8041 <0001* 77.32190 <0001* 55.45887 <0001* 55.45887 <0001* 47.99900 <0001* 47.99900 <0001* 45.24824 <0001* 45.24824 <0001* 45.24824 <0001* 37.76573 0.0000* 38.30777 0.0020* 30.84810 0.0148* 23.18936 0.1416 20.54642 0.2777 21.10666 0.3766	
Connecting Lette		0.0001					losed trees)	Connecting Letter	rs Report Mean		Color	(Hue)	at Shelf life (C	losed trees)
control untreated (in) Airlets Sprayer(in) control untreated(out) Regular Sprayer(out)	A 118.72313 B 86.20520 C 26.49578						·	control untreated (in)	A 95.242238 A B 88.729024 B 81.758537			. ,		,
AirJets Sprayer (out) Levels not connected b	C 22.64327 y same letter are signific	antly different	L					AirJets Sprayer (out) Regular Sprayer(out) Levels not connected by	D 23.700528 y same letter are significi	antly different				
	y same letter are signific	antly different	L.					Regular Sprayer(out)	D 23.700528 y same letter are significa	antly different				
Levels not connected b	y same letter are signific	Difference 106.6991		Lower CL 94.7173	Upper CL 118.6810	p-Value		Regular Sprayer(out) Levels not connected by Ordered Difference Level control untreated (in)	D 23.700528 y same letter are significa ces Report - Level Regular Sprayer(out)	Difference 71.54171	Std Err Dif 6.404223	58.6652	Upper CL p-Value 84.41826 <.0001*	
Levels not connected b Ordered Different Level	y same letter are signific ces Report - Level Airlets Sprayer (out) Regular Sprayer(out) Regular Sprayer(out) Airlets Sprayer(out) Airlets Sprayer(out) Airlets Sprayer(out)	Difference 106.6991 106.6958 102.8466 102.8432 96.0799 92.2274 63.5619 59.7094 43.1372 43.1338	Std Err Dif		118.6810 118.2858 115.7398 115.3731 107.6699 104.7572 75.1520 72.2393 55.6671 55.2896 44.6737 23.1491			Regular Sprayer(out) Levels not connected by Ordered Different Evel control untreated (in) control untreated (in) Regular Sprayer(in) Regular Sprayer(in) Aizlets Sprayer(in) control untreated (out) Regular Sprayer(in) control untreated (out) Regular Sprayer(in)	D 23.700528 ys same letter are signific cces Report - Level Regular Sprayer(out) Airlets Sprayer(out) Airlets Sprayer(out) Airlets Sprayer(out) Control untreated(out) Regular Sprayer(out) Control untreated(out)	Difference	Std Err Dif			

Figure S2. Detailed statistics of the effect of PDJ applied with different sprayers on color parameters in 'Kent' mango fruit presented in Figure 2. Treatments labeled by different letters are significantly (p < 0.05) different within each time point, according to the Tukey–Kramer LSD test (A–D and I–L) or with non-parametric analysis (E–H).

Connecting Letters Report		B Connecting Letters Report
Level Mean control untreated (in) A 0.78040000 control untreated (Out) B 0.53406667 PDJ (in) B C 0.3855000 PDJ (Out) C 0.36790000 0.36790000 Levels not connected by same letter are significit Same letter are significit Same letter are significit	Chlorophyll at Shelf life (open trees)	Level Mean Chlorophyll at Shelf life (Closed trees) control untreated (Out) A 0.852500 0.8527500 PDJ (m) A 8 0.71365556 PDJ (Cut) B 0.48106000 Levelar B 0.4106000
Ordered Differences Report	und	Ordered Differences Report
•		
Level - Level control untreated (in) PDJ (Out) control untreated (in) Control untreated (in) control untreated (in) control untreated (Out) pDJ (Out) PDJ (Out) control untreated (Dut) PDJ (in) PDJ (in) PDJ (Out)	Difference Std Err Dif Lower CL Upper CL p-Value 0.4125000 0.0775880 0.254095 0.5709049 <0001* 0.246333 0.0775880 0.087380 0.447382 0.003* 0.1661667 0.0775880 0.007762 0.3245716 0.0403* 0.1455167 0.0758874 -0.00877 0.2990107 0.0643* 0.026500 0.0758874 -0.03877 0.2990107 0.0782	Level - Level Difference Std frr 0H Lower CL Upper CL P-Value control untreated (in) PDJ (Out) 0.4171700 0.1447050 0.122042 0.7122978 0.00719 control untreated (in) PDJ (Out) 0.31716700 0.1447050 0.122042 0.712978 0.00719 PDJ (in) PDJ (Out) 0.2325756 0.1407057 -0.05542 0.6651797 0.01719 control untreated (in) PDJ (in) 0.1845944 0.1482349 -0.117733 0.486216 0.2324 control untreated (in) PDJ (in) 0.1825944 0.1482349 -0.117733 0.486216 0.2324 control untreated (in) control untreated (Out) 0.0455000 0.1525325 -0.25592 0.3565921 0.7675
Connecting Letters Report		Connecting Letters Report
Level Mean PDJ (Out) A 0.78381111 PDJ (in) B 0.64369000 control untreated (Out) B 0.61627778 control untreated (in) C 0.29775556	Anthocyanin at Shelf life (open trees)	D Mean Anthocyanin at Shelf life (Closed trees) PDI (Out) A 0.79101000 control untreated (Out) B 0.3942230 PDJ (m) C 0.2872444 control untreated (in) C 0.2872444
Levels not connected by same letter are signific	antly different.	Levels not connected by same letter are significantly different.
Levels not connected by same letter are signific Ordered Differences Report	antly different.	Levels not connected by same letter are significantly different. Ordered Differences Report
	Difference Std Err Dif Lower CL Upper CL p-Value 0.4860556 0.0618485 0.360224 0.6118872 <0001*	
Ordered Differences Report Level - Level PDJ (Out) control untreated (in) PDI (in) control untreated (in) PDI (Out) PDI (in)	Difference Std Err Dif Lower CL Upper CL p-Value 0.4860556 0.0618485 0.360224 0.6118872 <0001*	Differences Report Difference Std Err Dif Lower CL Upper CL p-Value PDI (Ourt) control untreated (in) 0.5196100 0.0506386 0.416332 0.622882 <0001*
Ordered Differences Report Level - Level PDJ (Out) control untreated (in) PDI (in) control untreated (in) PDI (Out) PDI (in) PDI (in) control untreated (Out)	Difference Std Err Dif Lower CL Upper CL p-Value 0.460556 0.061845 0.360224 0.611872 c.001* 0.345934 0.060824 0.223389 0.4685800 c.0001* 0.1675333 0.061845 0.04702 0.233860 0.0106* 0.1401211 0.060824 0.017476 0.2627667 0.0284* 0.0274122 0.060824 0.005523 0.150578 0.6523 Flavonoids at Shelf life (open trees)	Differences Report Difference Std Err Dif Lower CL Upper CL p-Value PDJ (Out) control untreated (in) 0.5196100 0.0506386 0.416332 0.622882 <0001*
Ordered Differences Report Level - Level PDI (out) control untreated (in) pDJ (in) control untreated (in) pDI (in) A PDI (in) B PDI (in) B	Difference Std Err Dif Lower CL Upper CL p-Value 0.460556 0.061845 0.360224 0.611872 c.001* 0.345934 0.060824 0.223389 0.4685800 c.0001* 0.1675333 0.061845 0.04702 0.233860 0.0106* 0.1401211 0.060824 0.017476 0.2627667 0.0284* 0.0274122 0.060824 0.005523 0.150578 0.6523 Flavonoids at Shelf life (open trees)	Ordered Differences Report Level Difference Std Err Dif Lower CL Upper CL P-Value PDI (Out) control untreated (in) 0.5919610 0.050836 0.41632 0.622882 40001 PDI (Out) PDI (in) 0.5037565 0.049058 0.41632 0.622882 40001 Control untreated (Out) 0.396785 0.049058 0.403726 0.603054 40001 Control untreated (Out) 0.396785 0.0396785 0.013800 0.231689 0.0283 Control untreated (Out) 0.015844 0.051879 0.00188 0.212781 0.04761 PDI (m) control untreated (in) 0.015844 0.051879 0.021869 0.0287 0.126420 0.7621 F Connecting Letters Report Mean 1.1786700 Control untreated (in) 1.030625 0.5823556 Flavonoids at Shelf life (Closed trees) PDI (m) B 0.582556 0.582556 Flavonoids at Shelf life (Closed trees)

Figure S3. Detailed statistics of the effect of PDJ on chlorophyll, or anthocyanin, or flavonoids in 'Kent' mango fruit grown inside or outside the tree canopy, and presented in Figure 3. Treatments labeled by different letters are significantly (p < 0.05) different according to the Tukey–Kramer LSD test.

Connecting Letters Report		Connecting Letters Report Level Mean
ABA out A 38.25000 ABA -PDJ out A 35.975610 PDJ out B 29.772727 centrol out B 25.357143 PDJ in C 11.304348 ABA =PDJ in C 9.285714 ABA in C D.750000	Red Surface at Harvest (open trees)	Ala out a 36.349585 Red Surface at Shelf life (open tre PDIout 8 35.37000 For the state of
control in D 4.456522 Levels not connected by same letter are sig	mili anth different	ABA in E 6.184211 Levels not connected by same letter are significantly different.
Ordered Differences Report		Ordered Differences Report
Level -Level Difference BAA out centrol in 33.79344 BAA Detto centrol in 33.79344 BAB - PD out centrol in 31.59304 BAB - PD out centrol in 31.59304 BAB - PD out ABA - PD out 26.94505 BAB - PD out ABA - PD in 2.6.94505 BAB - PD out ABA - PD in 2.6.94505 BAB - PD out ABA - PD in 2.6.94505 BAB - PD out ABA - PD in 2.6.94505 Control out ABA - PD in 2.4.67126 PD iont ABA - PD in 1.0.90506 Control out ABA - PD in 1.0.90506 Control out ABA - PD in 1.0.90506 ABA - PD out Control out 1.0.90506 ABA - PD out Control out 0.0.47272 PD in Control out 0.6.47272 ABA - PD out Control in 0.4.27373 ABA - PD out Control in 0.4.27373 ABA - PD out Control in 0.4.27374 ABA - PD in	2.26408 27.000 35.9723 .0001 2.304310 24.800 31.5403 .001 2.31600 24.800 31.5403 .001 2.31600 24.800 31.5403 .001 2.31508 24.800 31.5403 .001 2.31508 24.800 31.5403 .001 2.31508 24.800 31.4402 .0001 2.24409 20.318 29.0273 .0001 2.25150 16.013 24.9627 .0001 2.27530 16.013 24.9627 .001 2.27530 16.013 24.9627 .001 2.27530 16.013 24.9627 .001 2.23150 15.801 15.74760 .001 2.23150 15.804 15.1450 .001 2.23150 15.204 15.1000 15.004 2.23150 15.004 15.1504 15.1000 15.004 2.23150 15.004 15.1504 15.0001 2.23150 15.004 15.1504 15.1504 15.0001 2.23150 15.004 15.1504 15.0001 2.23150 15.004 15.1504 15.0001 2.23150 15.004 15.1504 15.1504 15.0001 2.23150 15.004 15.15	Lovel - Lovel Difference Std fr Diff New CL Opper CL PyMae ABA out Accord Accord No No No No No ABA out Accord No
ABA+PDJ in ABA in 1.78571	2.275390 -2.6900 6.26147 0.4331	control in ABA in 0.48246 2.639879 -4.7130 5.67791 0.8551
	risons For Each Pair Using Wilcoxon N	Nonparametric Comparisons For Each Pair Using Wilcoxon N
q* Alpha 1.95996 0.05 Re	ed Intensity at Harvest (open trees)	4 Alpha 1.95996 0.05 Red Intensity at Shelf life (open tree
1155556 6165	Score Mean	Score Mean
Level - Level	Difference Std Err Dif Z p-Value	Level - Level Difference Std Err Dif Z p-Value
ABA+PDJ out ABA in ABA+PDJ out ABA+PDJ in ABA out ABA in PDJ out control in control out control in control out control in PDJ out ABA in control out ABA in control out ABA+PDJ in PDJ out PDI in PDJ out PDI in PDJ out Control out ABA+PDJ in ABA+PDJ in PDJ out control out ABA+PDJ in ABA+PDJ in PDJ out control out ABA+PDJ in ABA+PDJ in ABA+PDJ out ABA+PDJ in Control in ABA+PDJ in PD out ABA avetD in PD out ABA avetD in PD out ABA avetD out control out ABA out control out ABA out control in ABA out PD in Control out Control in ABA avet PD in ABA out	39.7486 5.245068 7.5773 <.0001* 39.6892 5.243007 7.56877 <.0001* 31.7045 5.181786 7.27636 <.0001* 33.7045 5.181786 (.001* 33.8035 5.166712 (.55804 <.0001* 33.8028 5.166712 (.55804 <.0001* 33.8028 5.16712 (.59917 <.0001* 31.6300 5.330145 5.93417 <.0001* 31.6300 5.433280 5.23496 <.0001* 12.5817 4.998790 2.51644 (.0116* 3.8463 5.168396 0.74420 (.4568 3.7778 5.326448 0.70797 (.4790 2.4371 5.018902 0.48559 0.6273 1.8673 5.223800 0.35745 (.7208 -4.5192 4.920477 -0.91445 0.3584 -10.5230 (.48018 2.17404 0.0297* -11.5148 4.874284 -2.36235 (.0182* -20.5561 5.240381 -3.22263 <.0001* -26.5289 5.227797 -5.07650 (.0001* -26.5289 5.227797 -5.07650 (.0001* -26.5389 5.227797 -5.07650 (.0001* -26.5389 5.227197 -5.07650 (.0001* -36.36647 4.977841 -7.24305 <.0001* -37.1328 5.191310 -7.15289 <.0001* -37.8261 5.341694 -7.08129 <.0001* -37.8261 5.341694 -7.08129 <.0001*	ABA+PDJ out ABA in 38.1789 4.948296 7.71558 <.0001* ABA+PDJ out ABA in 32.9389 4.802508 6.83767 <.0001* PDJ out control in 32.9389 4.802508 6.83767 <.0001* PDJ out control in 32.0354 4.995755 6.40395 <.0001* Control out control in 32.0354 4.99595 6.84363 <.0001* Control out control in 29.4615 4.4439 <.0001* <.0001* control out ABA in 28.0047 4.961511 5.64439 <.0001* control out ABA+PDI in 11.9385 5.02479 4.3629 <.0001* PDI out PDI in 15.7361 4.942518 3.18383 0.0015* PDI in control in 15.4581 4.84315 2.8220 0.048* ABA+PDI in ABA in 9.6364 4.84912 2.8210 0.048* ABA+PDI in ABA out 7.9084 2.20182 0.438* 0.6516 PDI out control out 3A2.00 -11.3073 4.96107 0.96608 0.3340 <t< th=""></t<>
Levels not connected by same letter are s	ignificantly different.	Levels not connected by same letter are significantly different.
Ordered Differences Report		Ordered Differences Report
Level - Level Difference control in ABA + PD) out 101.4857 control in PDI avel 94.3395 control in Cantrol out 75.3861 pDi in ABA + PDI out 63.7322 PDi in ABA + PDI out 63.7322 PDi in ABA + PDI out 63.7322 PDi in ABA + PDI out 56.8122 ABA + IN ABA + DDI out 56.8122 PDi in ABA out 56.6183 ABA + IN ABA out 56.6183 ABA + IN ABA out 52.6159 ABA + IN ABA out 52.6159 ABA + PDI in ABA + PDI in 1.9004 Control out ABA + PDI in 1.9004 Control out ABA + PDI in 33.3141 Control out PDI out 90.384 Control out PDI out 90.9084 PDI in ABA + PDI out 19.0364 PDI in ABA + PDI out 19.0364 PDI in ABA + PDI out	10.6902, 73.2168 113.8390 -0001 9.33514 77.3171 113.0310 -0001 10.6902, 53.9770 9.6492 -0001 10.44326 42.8457 9.44.44.0001 10.44326 42.8457 9.44.44.0001 10.44326 42.8458 84.5764 -0001 8.66338 45.255 83.840 -0001 8.66338 45.255 83.840 -0001 10.11581 3.6544 75.976 -0001 10.37800 31.9274 73.2544 -0001 10.37800 31.9274 73.2544 -0001 10.31581 24.327 64.6442 -0001 10.31581 24.327 64.6442 -0001 10.31580 14.2697 63.568 0.0002 10.44326 10.6903 56.5561 0.0002 10.44326 10.6903 56.5561 0.0002 10.44326 10.6903 56.5561 0.0002 10.37800 11.445 73.7326 0.0016 10.37800 11.445 73.694 0.0017 10.37800 11.445 73.694 0.0017 10.37800 11.447 39.0348 0.0017 10.37800 11.447 39.0348 0.0017 10.37800 11.447 39.0348 0.0017 10.37800 1.3453 2.57440 0.4554 10.59513 -11.5453 2.57440 0.4554 10.5450 0.5181 -11.5453 2.57440 0.4554 10.5982 0.5181 -11.5453 2.57440 0.5181	Level Difference Std fr Dif LowerCl Upper CL PValue control in ABA-PD/out 0.8233 4.22670 65.0583 76.978 70.0011 control in ABA-PD/out 66.2011 4.92670 58.768 76.4539 4.00011 control in ABA-PD/out 40.2014 4.92670 38.487 58.15473 40.0011 control in ABA-PD/out 4.32050 4.92670 38.487 58.15473 40.0011 ABAin ABA-PD/out 4.32758 4.92670 38.448 53.10696 40.0011 ABAin ABA-out 4.32758 4.92670 31.2198 50.8874 4.00011 ABAin ABA-out 4.32758 4.92670 21.6423 4.12774 4.00011 ABAin ABA-out 4.32758 4.92670 21.6423 4.12774 4.00011 ABA Drout 3.2816 4.92670 21.4323 4.12001 4.00011 Control in ABA-out 21.8014 4.92670

Figure S4. Detailed statistics of the effect of PDJ or ABA or their combination on color parameters in 'Kent' mango fruit grown inside or outside the tree canopy, and presented in Figure 5. Treatments labeled by different letters are significantly (p < 0.05) different according to the Tukey–Kramer LSD test (A, B, E, F) or non-parametric analysis (C, D).

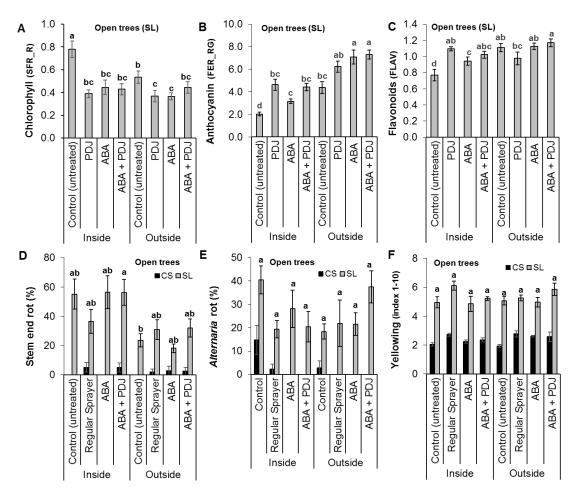


Figure S5. Effect of pre-harvest treatments of prohydrojasmon (PDJ) or Abscisic acid (ABA) and their combination of color parameters and postharvest disease incidence in 'Kent' mango fruit from open trees. (A) Chlorophyll quantification by multiplex. (B) Anthocyanin quantification by multiplex. (C) Flavonoids quantification by multiplex. (D) Stem-end rot incidence (percentage) after cold storage (CS) and additional shelf life (SL). (E) Side decay incidence (percentage) after cold storage and shelf life (SL). (F) Yellowing index (1–10). Values are mean ± SE (n = 40). Different letters indicate significant differences (p < 0.05), according to the Tukey–Kramer LSD test.