

Mitigating WA 38 greasiness

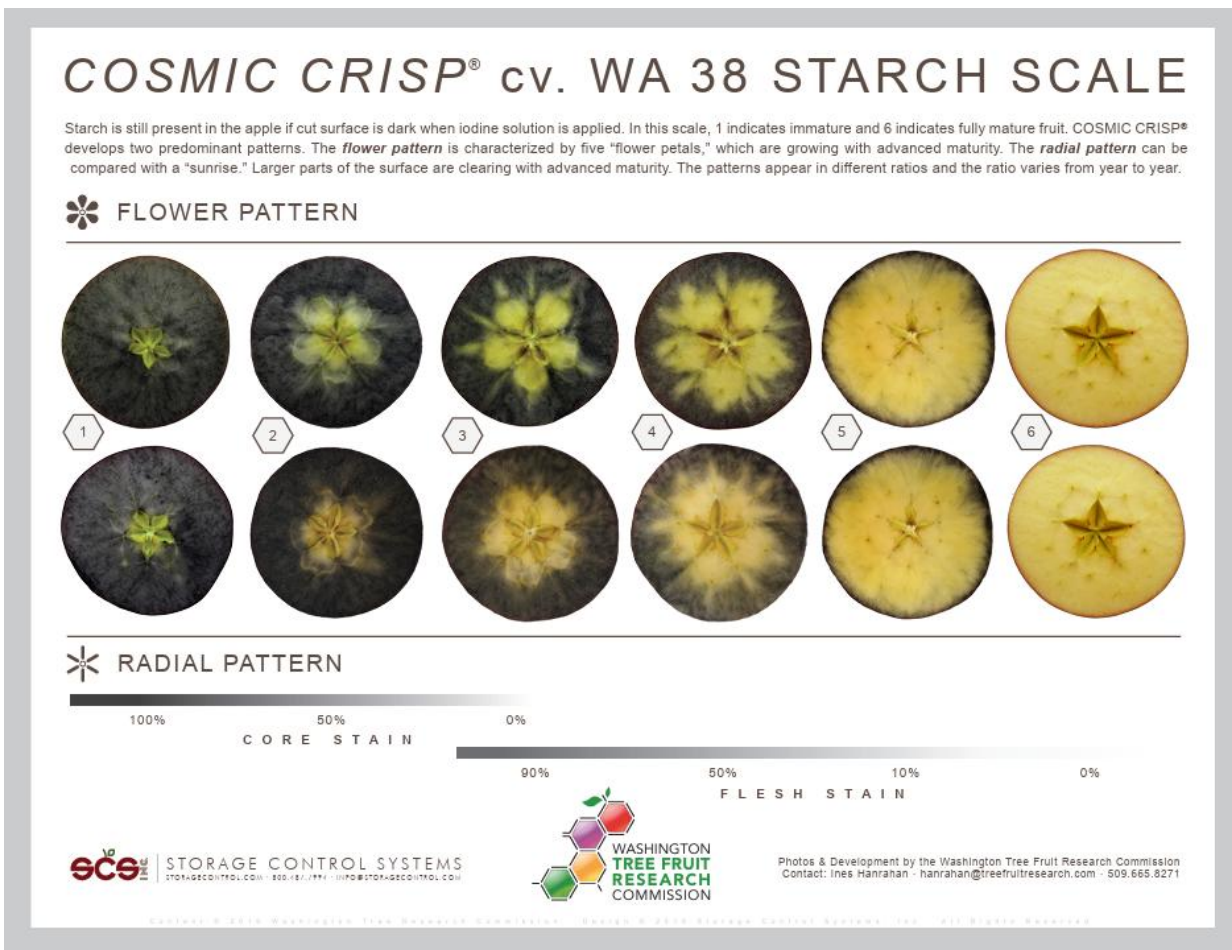
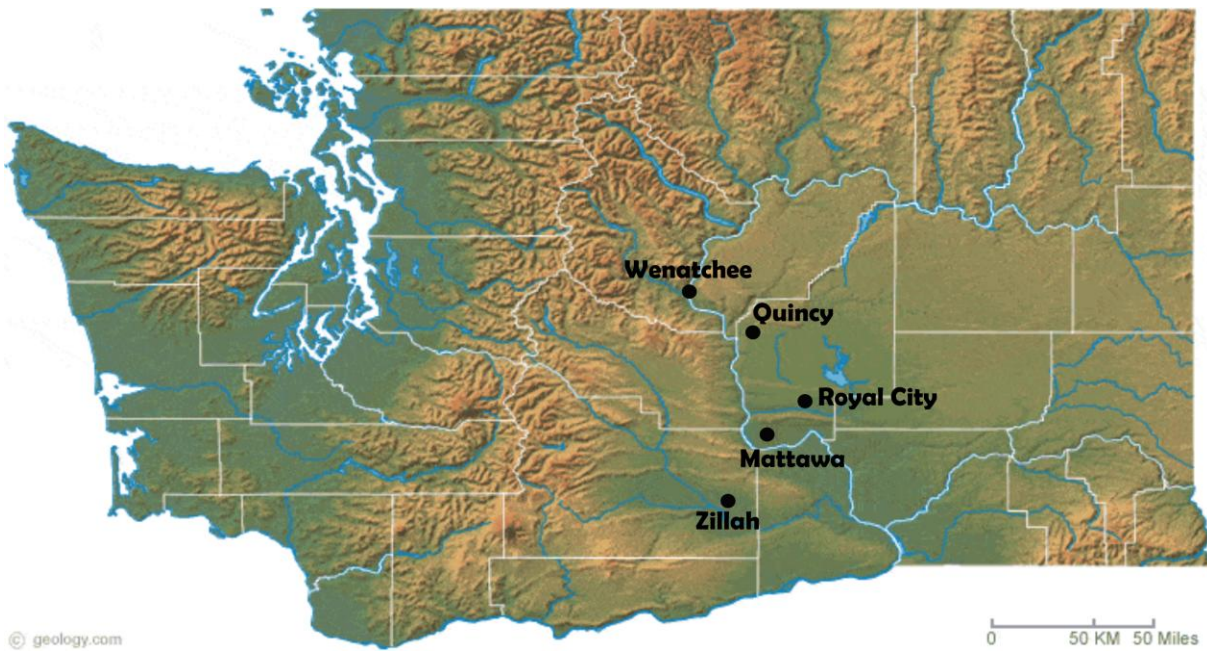
Problem:

Peel greasiness can develop at any time, both before and throughout the cold chain, on many apple cultivars, including WA 38. Besides diminished appearance, greasiness or, potentially, mitigation using high amounts of fruit finish aids (waxes and/or shellac) can be associated with off-flavors.

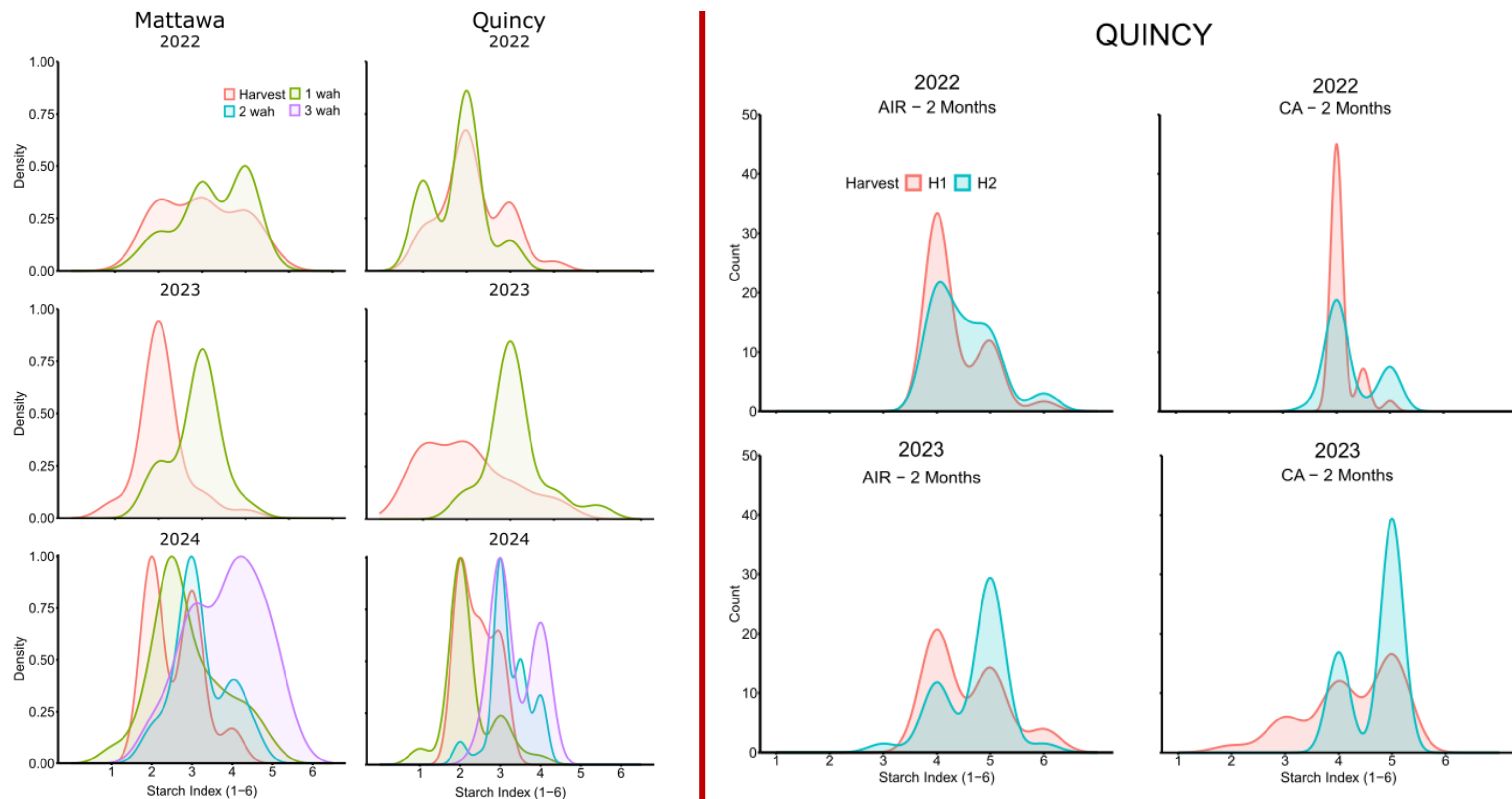
Project Goal:

1. Further define harvest maturity guidelines limiting the greasiness of WA 38 in the cold chain.
2. Establish ethylene mitigation protocols that reduce WA 38 greasiness for both conventional and organic production.

Harvest maturity and skin greasiness



Starch Index populations at different timepoints pre- and postharvest.



Final Remarks:

- Maturity progression varies between sites. The starch degrades at different rates in different years.
- Fruit greasiness appears to be more related to fruit maturity and perhaps seasonal weather than just tree age.
- Overall, fruit from the 2022 season had lower greasiness incidence and severity than that of 2023 and 2024 seasons.
cooler weather > greasiness
- Slight less starch degradation in CA (less than 0.5 points)
- More greasiness during 'shelf-life'



PGRs to Reduce Greasiness

Retain®

Year	Treat.	Material/a.i.	Rate	Timing	Others
2022	1	Untreated control (UTC)	NA	NA	<ul style="list-style-type: none">Orchard location: Zillah, WASylcoat (0.1% OSi) added to Retain® applications.Two harvests: At the time of UTC (commercial), and 1 week later.
	2	AVG (ReTain®)	Full rate (24 oz/acre)	7 DBH	
	3	ReTain®	Half-rate (12 oz/acre)	7 DBH	
2023	1	Untreated control (UTC)	NA	NA	
	2	ReTain®	Full rate	21 DBH	
	3	ReTain®	Full rate	14 DBH	
	4	ReTain®	Full rate	7 DBH	
2024	1	Untreated control (UTC)	NA	NA	
	2	ReTain®	Full rate	14 DBH	
	3	ReTain®	Double rate	14 DBH	
	4	ReTain®	Double rate	7 DBH	

Retain®

2022: No effect on greasiness incidence, but yes in severity, up to 4 months into storage (H1+1d)
Maturity: delayed starch degradation (H2), reduced ethylene production up to 4m into storage in H1.
2023: Reduced greasiness (incidence and severity) at harvest and 4m +1d 68°F
Maturity: delayed starch degradation (21 DBH), no consistent effect over C₂H₄.

1-MCP (Harvista™, SmartFresh™)

2022: No consistent effect over greasiness (incidence and severity).
Maturity: significantly delayed softening, reduced ethylene production (mostly SF).
2023: No effect over greasiness.
Maturity: significantly delayed softening, reduced ethylene production (mostly SF).

1-MCP (Harvista™, SmartFresh™)

Year	Treat.	Material/a.i.	Rate	Timing	Others
2022 & 2023	1	UTC	NA	NA	<ul style="list-style-type: none">Orchard location: Royal City, WATwo harvests: At the time of UTC (commercial), and 1 week later.Only harvest 1 for SF treats.
	2	1-MCP (Harvista™ 1.3 SC) (1x)	Full dose	14 DBH	
	3	Harvista™ (2x)	Full dose	14 & 7 DBH	
	4	UTC plus 1-MCP (SmartFresh™; SF)	100 ppm	At harvest	
	5	Harvista™ 1x plus SF	T2 plus SF (100 ppm)	At harvest	
2024	1	UTC	NA	NA	
	2	UTC plus 1-MCP (SmartFresh™; SF)	100 ppm	At harvest	

Funding



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