

Reflective Tarps Maintain Fruit Quality

MARCH 2021

Factsheet 1 of 2 generated from the project *“Managing extreme heat with reflective tarps in the blueberry industry”* conducted by ICMS during the 2020 growing season.

Problem: Heat and Sunlight Exposure Cause Quality Losses

- Picked berries exposed to temperatures above 4°C lose moisture which affects postharvest quality, storability and longevity.
- The higher the temperature, the faster the rate of loss.
- Berry picking occurs during the hottest days of the year in the Fraser Valley.
- Daily maximums can reach 35 °C in July, August and September.
- Growers do not have the picking and handling resources to be able to stop picking during this extreme heat each day.
- Pallets sitting in the field, yard or on the truck in direct sunlight can reach temperatures 36% higher than the surrounding air temperature.



Solution: Protect Quality with Reflective Tarps & Slip-on Covers

- Consistent high-quality fruit are important for sales in a competitive marketplace.
- Handling techniques that maintain postharvest quality and shelf-life will provide a competitive advantage to the industry. Reflective tarps protect berries from sunlight by reflecting the UV radiation.
- A silver mylar lining on the inside of the covers absorbs heat and transfers it through the tarp and the white surface emits the heat, preventing hot spots.
- This helps to retain the quality of the picked fruit.

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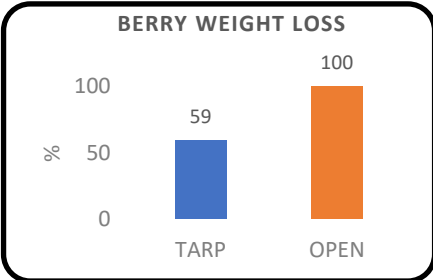
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Results From the Field

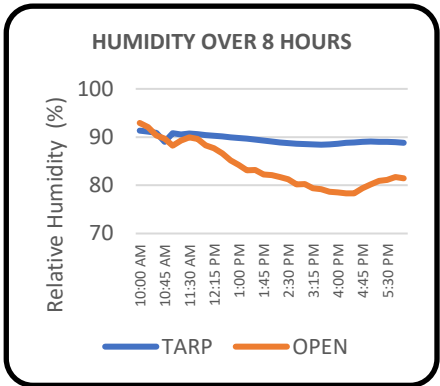
Reflective slip-on covers, specially designed to fit over a pallet of hand lugs or totes, were tested with over 25 growers and 4 packers during the 2020 field season. These covers were tested for their ability to protect fruit from the time periods of picking to transport and transport to processing facilities.

Slip-on covers **REDUCED BERRY WEIGHT LOSS BY 59%** compared to berries exposed to the sunlight or heat while sitting in the field mid-day for 8 hrs.

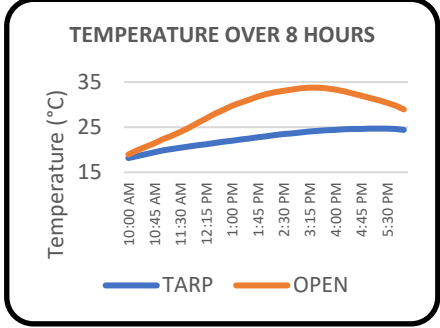


Average weight loss recorded over an 8-hour period from 7 separate days. Open had a loss of 14.8%. n = 15

Humidity under the protective covers was up to **14% HIGHER** than when left uncovered.



Fruit under the protective covers was up to **36% COOLER** than fruit which were exposed to the sunlight or heat.



Benefits of Reflective Slip-on Covers

- Harvested fruit under slip-on covers are protected from sunlight and heat during transport to the processor and during wait times at the plant.
- Covers can extend the picking hours per day, enabling producers to better manage trucking capacity.
- Covers can last up to 5 years.

How to Use the ROI Table

EXAMPLE: A 15% weight loss for fresh berries sold at \$1.00/lb results in a loss to the grower of \$158 on a pallet of hand lugs and \$180 on a stack of four totes. A slip-on cover costs \$70-\$80 and the cost of a cover is recouped by a single use. Results for processing berries which may be sold at \$.65/lb will be different.

\$/lb	Berry Weight Loss																	
	Pallet of Hand Lugs (1050 lbs)									Processing Totes (1200 lbs)								
	1%	3%	5%	7%	9%	11%	13%	15%	17%	1%	3%	5%	7%	9%	11%	13%	15%	17%
\$0.50	\$5	\$16	\$26	\$37	\$47	\$58	\$68	\$79	\$89	\$6	\$18	\$30	\$42	\$54	\$66	\$78	\$90	\$102
\$0.60	\$6	\$19	\$32	\$44	\$57	\$69	\$82	\$95	\$107	\$7	\$22	\$36	\$50	\$65	\$79	\$94	\$108	\$122
\$0.70	\$7	\$22	\$37	\$51	\$66	\$81	\$96	\$110	\$125	\$8	\$25	\$42	\$59	\$76	\$92	\$109	\$126	\$143
\$0.80	\$8	\$25	\$42	\$59	\$76	\$92	\$109	\$126	\$143	\$10	\$29	\$48	\$67	\$86	\$106	\$125	\$144	\$163
\$0.90	\$9	\$28	\$47	\$66	\$85	\$104	\$123	\$142	\$161	\$11	\$32	\$54	\$76	\$97	\$119	\$140	\$162	\$184
\$1.00	\$11	\$32	\$53	\$74	\$95	\$116	\$137	\$158	\$179	\$12	\$36	\$60	\$84	\$108	\$132	\$156	\$180	\$204
\$1.10	\$12	\$35	\$58	\$81	\$104	\$127	\$150	\$173	\$196	\$13	\$40	\$66	\$92	\$119	\$145	\$172	\$198	\$224
\$1.20	\$13	\$38	\$63	\$88	\$113	\$139	\$164	\$189	\$214	\$14	\$43	\$72	\$101	\$130	\$158	\$187	\$216	\$245
\$1.30	\$14	\$41	\$68	\$96	\$123	\$150	\$177	\$205	\$232	\$16	\$47	\$78	\$109	\$140	\$172	\$203	\$234	\$265
\$1.40	\$15	\$44	\$74	\$103	\$132	\$162	\$191	\$221	\$250	\$17	\$50	\$84	\$118	\$151	\$185	\$218	\$252	\$286
\$1.50	\$16	\$47	\$79	\$110	\$142	\$173	\$205	\$236	\$268	\$18	\$54	\$90	\$126	\$162	\$198	\$234	\$270	\$306
\$1.60	\$17	\$50	\$84	\$118	\$151	\$185	\$218	\$252	\$286	\$19	\$58	\$96	\$134	\$173	\$211	\$250	\$288	\$326
\$1.70	\$18	\$54	\$89	\$125	\$161	\$196	\$232	\$268	\$303	\$20	\$61	\$102	\$143	\$184	\$224	\$265	\$306	\$347
\$1.80	\$19	\$57	\$95	\$132	\$170	\$208	\$246	\$284	\$321	\$22	\$65	\$108	\$151	\$194	\$238	\$281	\$324	\$367
\$1.90	\$20	\$60	\$100	\$140	\$180	\$219	\$259	\$299	\$339	\$23	\$68	\$114	\$160	\$205	\$251	\$296	\$342	\$388
\$2.00	\$21	\$63	\$105	\$147	\$189	\$231	\$273	\$315	\$357	\$24	\$72	\$120	\$168	\$216	\$264	\$312	\$360	\$408

[FINAL PROJECT REPORT AND FACT SHEET #2 AVAILABLE AT CLIMATEAGRICULTUREBC.CA](#)



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