

# **Use of Surfactants to Remove Surface Pests from Cherries**

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# Fruit Quality



- 3 reps of 25 cherries
- Solution and fruit at 32F
- Shaker for 3 or 5 minutes
- Blot on absorbant towels
- Store in cherry zip bags
- Air and Sea Shipment



# Artificial Infestation

- Two-spotted spider mites and western flower thrips
- 7-10 cherries
- 3-4 infested cotton leaves for mites or naked thrips added
- Overnight
- Treat with shower system

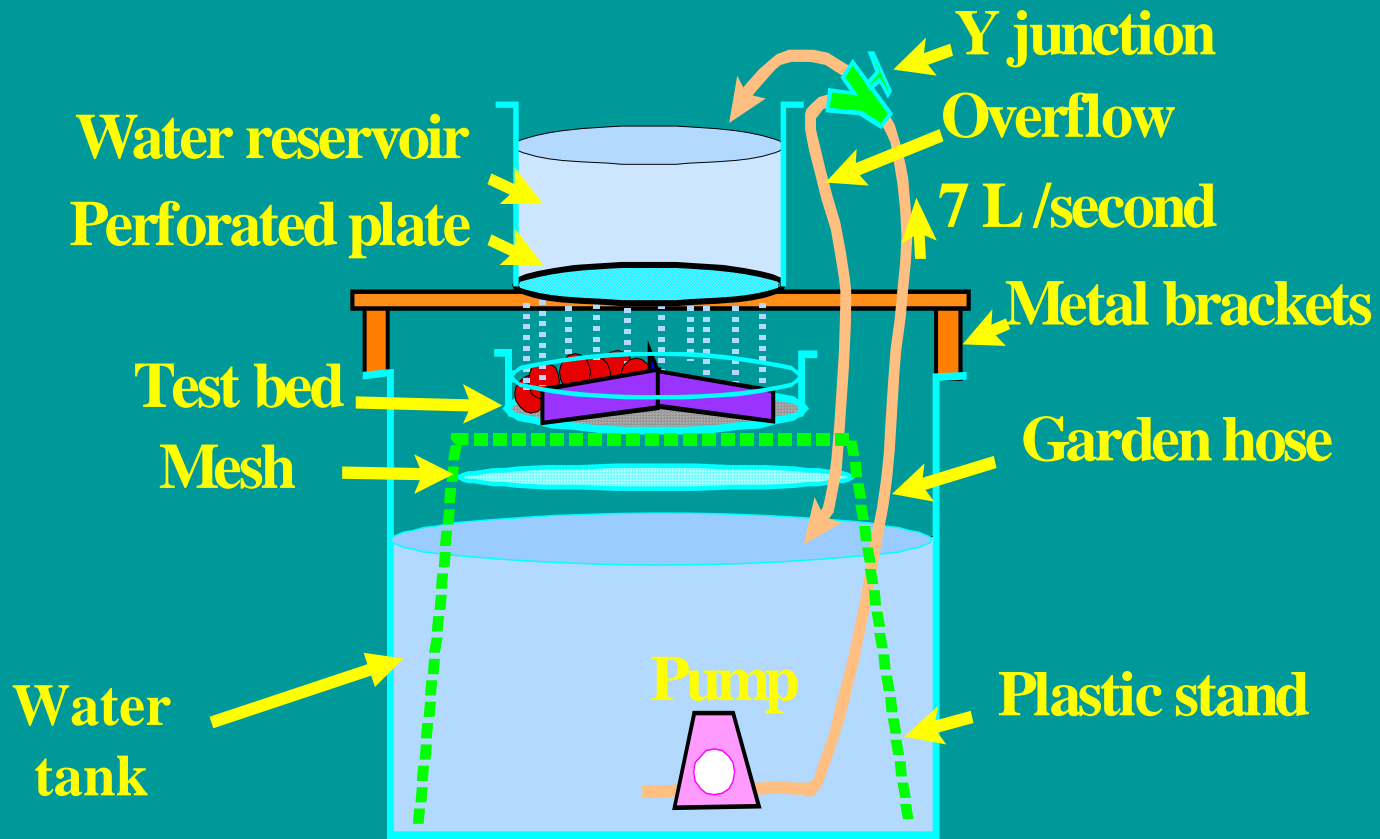




## **Artificial Infestation**

- Cherries gently removed from solution
- Solution filtered with low suction
- Count eggs and other life stages removed and remaining on cherries





# Shower

# Cherry Stem Browning and Surface Pitting after Treatment and Simulated Air Shipment

Treatment	3 minute		5 minute	
	Stem Browning	Pitting	Stem Browning	Pitting
Untreated control	1.1 a	1.2 bc	1.1 a	1.3 a
Water only control	1.0 a	1.2 c	1.1 a	1.3 a
0.1% Agrinse 7	1.1 a	1.3 ab	-	-
0.1% Agrinse 7 + chlorine	1.0 a	1.3 abc	-	-
0.6% Agrinse 7	1.0 a	1.2 bc	1.4 a	1.3 a
0.6% Agrinse 7 + chlorine	-	-	1.0 a	1.3 a
0.9% Agrinse 7	1.0 a	1.4 a	1.2 a	1.2 a
0.9% Agrinse 7 + chlorine	1.0 a	1.3 ab	1.2 a	1.2 a
100 ppm chlorine	1.0 a	1.2 bc	1.2 a	1.1 a

Rating scale: 1(none), 2(slight), 3(moderate), 4(severe)

# Cherry Stem Browning and Surface Pitting after Treatment and Simulated Sea Shipment

Treatment	3 minute		5 minute	
	Stem Browning	Pitting	Stem Browning	Pitting
Untreated control	1.2 a	2.1 a	1.5 cd	1.5 a
Water only control	1.2 a	2.0 a	1.5 cd	1.6 a
0.1% Agrinse 7	1.2 a	1.9 a	-	-
0.1% Agrinse 7 + chlorine	1.1 a	1.9 a	-	-
0.6% Agrinse 7	1.2 a	1.7 a	1.9 a	1.5 a
0.6% Agrinse 7 + chlorine	-	-	1.3 d	1.6 a
0.9% Agrinse 7	1.1 a	1.7 a	1.6 bc	1.6 a
0.9% Agrinse 7 + chlorine	1.1 a	2.1 a	1.4 d	1.5 a
100 ppm chlorine	1.2 a	2.0 a	1.7 ab	1.5 a

Rating scale: 1(none), 2(slight), 3(moderate), 4(severe)

# Survivorship of Two-spotted Spider Mites and Western Flower Thrips after a 3 Minute Shower

Treatment	Two-spotted spider mite		Western flower thrips	
	Mean # survivors	Mean # remaining	Mean # survivors	Mean # remaining
*Untreated control	272 (53.5)	312.7 (56.9)	76 (26.0)	161.2 (28.3)
Water only control	188.7 a	277.7 (65.0)	2.3 a	8.0 (2.5)
0.1% Agrinse 7	33.7 b	146.3 (36.9)	1.7 a	3.0 (1.0)
0.1% Agrinse 7 + chlorine	22.0 b	167.7 (48.7)	1.7 a	5.7 (1.3)
0.9% Agrinse 7	10.3 b	117.0 (43.2)	0.3 a	0.7 (0.7)
0.9% Agrinse 7 + chlorine	17.0 b	113.0 (7.2)	2.0 a	7.3 (3.4)

# Survivorship of Two-spotted Spider Mites and Western Flower Thrips after a 5 Minute Shower

Treatment	Two-spotted spider mite		Western flower thrips	
	Mean # survivors	Mean # remaining	Mean # survivors	Mean # remaining
*Untreated control	272 (53.5)	312.7 (56.9)	76 (26.0)	161.2 (28.3)
Water only control	12.0 a	21.3 (13.2)	2.3 a	3.3 (1.2)
0.1% Agrinse 7	19.3 a	231.7 (84.0)	2.3 a	5.7 (1.3)
0.1% Agrinse 7 + chlorine	0.0 a	1.3 (0.9)	1.0 a	11.0 (3.0)
0.9% Agrinse 7	0.0 a	6.0 (1.2)	0.3 a	0.7 (0.3)
0.9% Agrinse 7 + chlorine	0.0 a	7.0 (4.1)	3.0 a	3.7 (2.7)

# Removal of Two-spotted Spider Mite Eggs after a 3 or 5 Minute Shower

Treatment	Mean # Eggs Remaining	
	3 minute	5 minute
*Untreated control	175.7 ± 86.6	175.7 ± 86.6
Water only control	23.3 a	15.3 a
0.1% Agrinse 7	22.0 a	-
0.1% Agrinse 7 + chlorine	10.0 a	-
0.6% Agrinse 7	-	31.3 a
0.6% Agrinse 7 + chlorine	-	7.7 a
0.9% Agrinse 7	4.3 a	16.7 a
0.9% Agrinse 7 + chlorine	16.7 a	14.7 a

# Mortality of Two-spotted Spider Mites Eggs after a 5 Minute Shower

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Treatment	Mean % Mortality (SE)
Untreated control	10.3 (3.8)
Water only control	8.5 (4.1)
0.6% Agrinse 7	30.2 (11.4)
0.6% Agrinse 7 + chlorine	54.3 (41.9)
0.9% Agrinse 7	26.9 (10.1)
0.9% Agrinse 7 + chlorine	55.4 (30.1)

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