Bagging Peaches as an Organic Pest Management Strategy

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Dirty Dozen™
buy these organic.

EWG’s 2011 Shopper’s Guide
to Pesticides in Produce™

WORST
1. Apples
2. Celery
3. Strawberries
4. Peaches
5. Spinach
6. Nectarines I
7. Grapes I
8. Sweet bell peppers
9. Potatoes
10. Blueberries D
11. Lettuce
12. Kale/collard greens

Highest In Pesticides
Source: Environmental Working Group

1. Peach
2. Apple
3. Bell Pepper
4. Celery
5. Nectarine
6. Strawberries
7. Cherries
8. Kale
9. Lettuce
10. Imported Grapes

Nutrition Facts
Peach, raw
Serving size 175g

Calories 68
Water 155

%Daily Value
Total Fat 0.4g 1%
Cholesterol 0g 0%

Vitamins
Vitamin A 570IU 11%
Vitamin C 11.6mg 19%
Vitamin K 4.6mcg 6%
Niacin 1.4mg 7%
Potassium 333mg 10%
Organic peach production on the rise: 49% increase in acreage (2008-2011)
California accounted for most of this growth
Plum curculio
Goals

To increase the production of high-quality organic peaches

To reduce reliance on pesticides
Fruit bagging
Thinning + bagging: 50% labor hours (25% production costs)

2,000-4,000 peaches/day/person
Bag deterioration?
Off-color fruit finish?
Two varieties: early and mid-season varieties
Two locations: Watsonia and Titan Farms

10 trees
150 fruit/tree were bagged

Bagging peaches at Watsonia Farms

Titan Farms
Control (non-bagged fruit)

Bagged fruit

Unbagged fruit (10 days before harvest)
**Measurements:**

- Postharvest disease assessment
- Fruit quality: color, size and weight, Brix, and acidity
- Consumer acceptance surveys
Disease assessment
Brown rot and fruit recovery at harvest
Disease assessment
Brown rot and fruit recovery at harvest

Watsonia Farms

% fruit

Brown rot
Fruit recovery

Control  Bagged  Unbagged
Postharvest disease assessment
Brown rot after 3 and 7 days

Disease incidence %

3 days after storage

7 days after storage

Titan Titan Wat Wat
Early Mid Early Mid

control bagged

Titan Titan Wat Wat
Early Mid Early Mid

control bagged
Early-season - Titan

Fruit size (mm)

- Control
- Bagged
- Unbagged

Mid-season - Titan

Fruit weight (g)

- Control
- Bagged
- Unbagged
Early-season - Watsonia

- Fruit size (mm)
- Fruit weight (g)

Mid-season - Watsonia

- Fruit size (mm)
- Fruit weight (g)

Control Bagged Unbagged

Fruit size (mm)
- Early-season: Control (b), Bagged (a), Unbagged (b)
- Mid-season: Control (a), Bagged (a), Unbagged (a)

Fruit weight (g)
- Early-season: Control (b), Bagged (a), Unbagged (b)
- Mid-season: Control (a), Bagged (a), Unbagged (a)
Early-season variety - Titan

Brix

Acidity

Ratio Brix/Acidity

Control  Bagged  Unbagged
Early-season variety - Watsonia

Brix

Acidity (%)

Ratio Brix/Acidity
Mid-season variety - Titan

**Brix**

- Control: a
- Bagged: a
- Unbagged: a

**Acidity**

- Control: a
- Bagged: a
- Unbagged: a

**Ratio Brix/Acidity**

- Control: a
- Bagged: a
- Unbagged: a
Mid-season variety - Watsonia

**Brix**

- Control: a
- Bagged: a
- Unbagged: a

**Acidity**

- Control: a
- Bagged: a
- Unbagged: a

**Ratio Brix/Acidity**

- Control: a
- Bagged: a
- Unbagged: a
Consumer acceptance surveys
Which batch of peaches does look more attractive to you?
Which batch of peaches does look more attractive to you?

...after learning about peach bagging, same question

Would you pay a premium for bagged peaches?
Clemson’s Farmers Market; Early-season variety

Which batch of peaches does look more attractive?

- Bagged: 31%
- Conventional: 46%
- Same: 23%

After learning about bagged peaches...

- Bagged: 93%
- Conventional: 3%
- Same: 4%
At Clemson (street survey); Mid-season variety

Which batch of peaches does look more attractive?

- Conventional: 93%
- Bagged: 7%

After learning about bagged peaches...

- Conventional: 86%
- Bagged: 14%
Challenges

- Determination of ripening date for bagged peaches
- Economic assessment of costs and benefits
- Best way to dispose of used bags
- Ideal bag type and time of bagging
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Questions?