Economics of High Tunnel Vegetable & Strawberry Production in the Central Midwest

Presented at the 2007 Indiana Horticultural Congress and Trade Show
Costs of High Tunnels (frame only) Used by Growers in the Central Midwest:

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Dimensions</th>
<th>Cost ($/ ft²)</th>
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<tbody>
<tr>
<td>Atlas Greenhouses</td>
<td>30 ft. x 96 ft.</td>
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<td>Conley Greenhouse Mfg</td>
<td>24 ft. x 96 ft.</td>
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<td>Average</td>
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<td>(2400 ft²)</td>
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Small high tunnels

Large high tunnels
Wide end walls for passive ventilation of the high tunnels:
Greenhouse Capital Requirements: $\approx 6.50 \text{ per square foot}$
Crops being grown within high tunnels in the Central Great Plains:

Source: 2004-05 Central Great Plains High Tunnel Survey
High Tunnel Cucumbers, Melons and Squash
High Tunnel Lettuce and Salad & Micro Greens
High Tunnel Strawberries
High Tunnel Small Fruit
High Tunnel Figs
High Tunnel Flowers
Spring/Winter

- Leafy greens
- Broccoli
- Strawberries

Summer

- Melons
- Tomatoes
- Mixed Crops

Fall

- Leafy greens
- Strawberries
- Tomatoes
Wholesale Cooperative Produce Auctions
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Pre-harvest Costs:
Material Costs per 1000 ft²

Stakes & Twine: $48.00
Labor: $50.00

Material Costs per 1000 ft²

Cages: $170.00-$340.00
Labor: $20.00
Ventilation (air movement) is important for tomato pollination.
5-8 ft. Sidewalls

Wide Endwalls

Roof Vents

Solar-powered Sidewall Vents
Pruning may be necessary to promote earliness and reduce biomass within the high tunnel.
Row or Crop Covers: 1.5¢ per ft²
Mulching for weed control:
Intercropping can increase productivity per ft$^2$. 
Insect screen
Harvesting and Packaging

60 man hours per commercial high tunnel
Total Production Costs: $5.50/plant
How profitable are high tunnel tomatoes?

The graph shows the net revenue per 1000 ft² ($/1000 ft²) as a function of the price per lb ($/lb) for different plant loads: 8 lbs/plant (yellow squares), 10 lbs/plant (blue squares), and 12 lbs/plant (red circles).

As the price per lb increases, the net revenue also increases. The highest revenue is achieved with the highest plant load, followed by the intermediate and lowest plant loads.
How profitable are high tunnel tomatoes?

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<th>Price/lb. ($)</th>
<th>Net Revenue/1000 ft² ($)</th>
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<tbody>
<tr>
<td></td>
<td>8 lbs/plant</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0.5</td>
<td>1000</td>
</tr>
<tr>
<td>1</td>
<td>2000</td>
</tr>
<tr>
<td>1.5</td>
<td>3000</td>
</tr>
<tr>
<td>2</td>
<td>4000</td>
</tr>
<tr>
<td>2.5</td>
<td>5000</td>
</tr>
<tr>
<td>3</td>
<td>6000</td>
</tr>
<tr>
<td>3.5</td>
<td>7000</td>
</tr>
<tr>
<td>4</td>
<td>8000</td>
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Break Even Price:
- 8 lbs/plant: 0.5 lb
Spring/Winter
- Leafy greens
- Broccoli
- Strawberries

Summer
- Melons
- Tomatoes
- Mixed Crops

Fall
- Leafy greens
- Strawberries
- Tomatoes
VINE CROPS
High Tunnel Cucurbit Pre-harvest Costs
Trellising Cucurbits:
Improves harvest efficiency.
Increases marketable yields.
Pollination
Pest Management
How profitable are high tunnel cantaloupes?
Wholesale Cantaloupe Prices (4 year avg.)

Fall High Tunnel Cucumber Yields 2005

Boxes (45 ct) per High Tunnel

No.

Dasher II  
Indy  
Socrates  
Diva  
Timor  
Genuine  
Tasty Green  
Millago  
Camaro  
Tyria  
Hazera 456

Cultivar
Wholesale Cucumber prices (4 year avg.)

Price/box ($)

- June 10
- June 25
- July 5
- July 16
- August 15
- Sept. 15
Prices at MO Wholesale Cooperative Produce Auctions

- http://agebb.missouri.edu/hort/auction/index.htm
High Tunnel Strawberries
Plant Costs
Packaging Costs
Marketable Yields
How profitable are high tunnel strawberries?

- **0.75 lbs/plant**
- **1.0 lbs/plant**
- **1.2 lbs/plant**

Net Revenue ($) per 1000 ft

- $1.28/lb break even price
- $3.00/lb Avg. price from test mkts.

$1.28/lb break even price

$3.00/lb Avg. price from test mkts.
Thank you, and please visit the high tunnel web site:

Hightunnels.org