The North Carolina Peach Industry

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The North Carolina Peach Industry

- Approximately 4,000 bearing acres
- Historically, much larger area – 1946 – 37,500 acres
- Approximate market value of $12-15 million
- All marketed through retail, local wholesale markets, and Farmer’s Markets
- Major Varieties:
  - Contender
  - Winblo
  - Cresthaven
  - Rehhaven
  - Big Red
  - Norman
  - Georgia Belle
  - Loring
  - Carolina Belle
  - Derby
  - Biscoe
PEACH CULTIVARS

1965-1981
Whynot
Hamlet
Derby
Correll
Candor
Rubired
Pekin
Clayton
Norman
Troy
Winbloc
Ellerbe
Biscoe
Emery

1979-Present
Carolina Red (n)
Galactica (p)
Carolina Belle
Challenger
Intrepid
Contender
China Pearl
Carolina Gold

Introduced by the North Carolina Agricultural Research Service 1965 to 1981
Peach Production in North Carolina – Striving For Profitability

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farmer n.

One who is asked to feed the world in exchange for enough money to starve his family.
Historically, when farmers were faced with low prices and economic hardships, they increased their planted acreage – only reducing fixed costs.
DIVERSIFICATION - Modifying a farming operation by increasing the number of higher value crops produced and/or markets utilized by the grower

GOAL OF DIVERSIFICATION – To minimize the economic risk to the grower and INCREASE farm PROFITS
Fruit growers must spend as much time marketing their crop as they do in producing their crop in order to maximize returns.
Market Diversification

- Direct to consumer
  - Retail Markets
    - Roadside
    - Pick-your-own
  - Wholesale distributors
  - Farmers markets
  - Niche markets
Orchard Economics
Down and Dirty

**Expenses**
Orchard Establishment through the third year - $1,836
Annual Expenses during production - $1,862

**Potential Annual Gross Returns***
- Sales price of 15.00/bu $4,500-6,000/acre
- Sales price of 20.00/bu $6,000-8,000/acre
- Sales price of 25.00/bu $7,500-10,000/acre

*Assume early season cultivars yield 300 bu/acre and mid-late season cultivars yield 400 bu/acre
Peach Tree Short Life

Major Factor Limiting Peach Production
Ring nematodes are a predisposing factor!
10-Point Management Program

- Apply lime before planting to adjust pH to 6.5 in top 16” of soil
- Subsoil before planting to break up hardpans and improve root development
- In sandy soils and where nematodes are a problem, preplant fumigate
- Plant trees which have been grown in fumigated soil or certified to be free of nematodes
- Plant trees on Lovell, Halford or Guardian rootstock, depending on previous history and nematode pressure
- Apply nutrients and lime as needed based on soil and foliar analysis
- Prune as late as possible, never before January 1 and preferably after February 15.
- Use recommended herbicides for weed control
- In sites where preplant fumigated, postplant fumigate at 2 year intervals
- Remove and destroy promptly all dead or dying trees, including as much of the root system as practical
Which rows were preplant fumigated?
MUST Have
Consistent Cropping to
Ensure Profitability
## Critical Temperatures For Peach Blossoms

<table>
<thead>
<tr>
<th>Developmental Stage</th>
<th>10% Kill C (F)</th>
<th>90% Kill C (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Swell</td>
<td>-7.8 (18)</td>
<td>-17.2 (1)</td>
</tr>
<tr>
<td>Calyx Green</td>
<td>-6.1 (21)</td>
<td>-15.0 (5)</td>
</tr>
<tr>
<td>Calyx Red</td>
<td>-5.0 (23)</td>
<td>-12.8 (9)</td>
</tr>
<tr>
<td>First Pink</td>
<td>-3.9 (25)</td>
<td>-9.4 (15)</td>
</tr>
<tr>
<td>First Bloom</td>
<td>-3.3 (26)</td>
<td>-6.1 (21)</td>
</tr>
<tr>
<td>Full Bloom</td>
<td>-2.8 (27)</td>
<td>-4.4 (24)</td>
</tr>
<tr>
<td>Petal Fall</td>
<td>-2.2 (28)</td>
<td>-3.9 (25)</td>
</tr>
</tbody>
</table>

Ballard, Proebsting, Tukey, 1984, WSU
Frost Protection Options

Not All Are Created Equal!

- Cultivar Selection
- Site Selection
- Orchard Floor Management
- Wind Machines
  - With or Without Heat
- Overhead Irrigation
- Preventive Sprays
- Frost Dragon
Peach Cultivar Selection Considerations

- Peach cultivars should be selected that mature during the entire market season.
- Selected cultivars should have at least a 750 hr chilling requirement.
- Cultivars should have some degree of resistance to Bacterial Spot.
Peach Varieties

Use Varieties to Space Out Harvest Season

- Candor
- Clayton
- Redhaven
- Derby
- Norman
- Intrepid
- Challenger
- Contender
- Winblo
- China Pearl
- Others
Contender
Challenger and Intrepid

- Redhaven x (Reliance x Biscoe)
- Cold hardy
- Ripe late June (Challenger) to early July (Intrepid)
- Below average firmness
China Pearl

- Contender x PI134401
- White fleshed, low acid
- Ripe early August
- Cold hardy
- High chilling rqt.
- Spot susceptible
China Pearl
Carolina Gold (NC98-83)

- Biscoe x (Encore x San Miquel)
- Ripe - 2 weeks after ‘Contender’
- Spot resistant
- Fruit size = 3.0 inches
- Excellent flavor and texture
Galactica - (NC98-42)

- Peento (donut)
- NCN4 x ‘Hangchow’
- White flesh - semi-acid
- Spot susceptible
- Excellent flavor and texture
- 750-800 hr chilling requirement

Slides Compliments of Dr. Dennis Werner
Peach Tree Cropping in Western North Carolina

Trees in 10\textsuperscript{th} leaf, 7 cropping seasons with crop loss in 2007

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Cumulative Crop (lbs/tree)</th>
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</thead>
<tbody>
<tr>
<td>Candor</td>
<td>600</td>
</tr>
<tr>
<td>Challenger</td>
<td>747*</td>
</tr>
<tr>
<td>Carolina Belle</td>
<td>606</td>
</tr>
<tr>
<td>Intrepid</td>
<td>795*</td>
</tr>
<tr>
<td>Winblo</td>
<td>539</td>
</tr>
<tr>
<td>Contender</td>
<td>769*</td>
</tr>
<tr>
<td>China Pearl</td>
<td>888*</td>
</tr>
</tbody>
</table>
Orchard Floor Management Can Affect Many Aspects of a Peach Orchard
Why Use a Vegetative Cover?

- Erosion control
  - Wind and water
- Support equipment movement under wet conditions
- Moderate Spring temperature fluctuations
- Maintain soil structure
- Increase moisture infiltration
- Encourage nutrient recycling
Qualities of an Acceptable Ground Cover?

- Minimizes Erosion
- Minimal competition with tree
- Supports equipment movement
- Does not interfere with labor
- Does not interfere with pollination
- Does not harbor pests
  - Insect, disease, vertebrate
<table>
<thead>
<tr>
<th>Ground Cover</th>
<th>TCSA (cm(^2))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean</td>
<td>73 a</td>
</tr>
<tr>
<td>Nimblewill</td>
<td>72 a</td>
</tr>
<tr>
<td>Centipede</td>
<td>31 b</td>
</tr>
<tr>
<td>Brome</td>
<td>41 b</td>
</tr>
<tr>
<td>Bahia Grass</td>
<td>7 c</td>
</tr>
<tr>
<td>Weedy Check</td>
<td>32 b</td>
</tr>
</tbody>
</table>
Peach Rooting

‘Biscoe’/’Lovell’ (Prunus persica L. Batsch.)

<table>
<thead>
<tr>
<th>Ground Cover</th>
<th>Total Root #</th>
</tr>
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<tbody>
<tr>
<td>Clean</td>
<td>745 a</td>
</tr>
<tr>
<td>Nimblewill</td>
<td>725 a</td>
</tr>
<tr>
<td>Centipede</td>
<td>516 b</td>
</tr>
<tr>
<td>Brome</td>
<td>495 b</td>
</tr>
<tr>
<td>Bahia Grass</td>
<td>276 c</td>
</tr>
<tr>
<td>Weedy Check</td>
<td>298 c</td>
</tr>
</tbody>
</table>
Centipede
Bahia Grass
Weed Free - Herbicide
Clean Cultivation - Mechanical
Wintergreen Fine Fescue
# Peach Relative Moisture Levels
## Under Sod (June)

<table>
<thead>
<tr>
<th>Ground Cover</th>
<th>Depth (in)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean-Herbicide</td>
<td>73</td>
<td>77</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>Clean Cultivation</td>
<td>74</td>
<td>88</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>Park Ken. Blue</td>
<td>24</td>
<td>41</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Wintergreen F.F.</td>
<td>31</td>
<td>45</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>Peak Alfalfa</td>
<td>23</td>
<td>26</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>W. Dutch Clover</td>
<td>17</td>
<td>16</td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>
Insect Management
Prunus Stem Pitting

Premature fall color

Thick, spongy bark

Pits and grooves in wood surface
Ground Cover Management

- Annual maintenance of herbicide strip
  -- Drip line minimum
- Vegetative grass cover in drive alley
- Eliminate winter annuals in cover
- Suppress height of grass cover
  -- Mow or chemically suppress
Frost/Freeze Protection
Wind Machines
Thank You!