Economics of Working Efficiently

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Economic Projection Assumptions

• 265 acre farm – Tall Spindle 3 x 12

• Compare hand labor for dormant & summer pruning & hand thinning

• Annual shearing with hedger

• Detailed Dormant pruning 1 of 3 years, no dormant pruning 2 of 3 years – maintain a pruning crew by pruning 1/3 of farm each year.
Hedgers: Annual Summer Hedging, 1/3 farm: Dormant pruned annually OTRP, & Hand thinning w/ all 3 platforms

<table>
<thead>
<tr>
<th>Equipment Additions:</th>
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<tr>
<td><strong>1 Over the Row (OTRP), Tractor Mounted Platform @ $45,000</strong></td>
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<tr>
<td><strong>2 Between Row (BRP) Tractor Mounted Platform @ $12,300</strong></td>
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<tr>
<td><strong>2 Hedgers @$13,000.00</strong></td>
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<td><strong>Total: $ 82,600 investment</strong></td>
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Annual Operating Expense Increases:

- $41.40 per fruit acre for repairs, maintenance, fuel, oil & lubrication
Efficiencies: Beginning in Year 6

- **Dormant pruning:** Incr. labor efficiency by 30%
- **Hand thinning:** incr. efficiency by 25%
- **Summer Pruning:** no summer pruning – eliminate hand labor for summer pruning in 6 yr old plantings & older
Efficiency Increases with Mechanization: Hedge Annually, Dormant Prune Once Every 3 yrs. w/ ORP, Hand Thin Using Between Row Platforms

NPV Comparison: Mechanized VS Hand Labor for Pruning & Hand thinning at 15 & 20 Yrs.

Mechanized
Hand Labor
$17,010 + $3,476
$8,546 + $2,493
$6,053
$13,534
Comparing Traditional to Mechanized

<table>
<thead>
<tr>
<th></th>
<th>1,210 bu</th>
<th>ORP &amp; 2 BTP w/ 2 Hedgers</th>
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<tbody>
<tr>
<td>$10/bu</td>
<td>$6,053</td>
<td>$8,546</td>
</tr>
<tr>
<td>15 Yr. NPV</td>
<td>$13,534</td>
<td>$17,010</td>
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<tr>
<td>20 Yr. NPV</td>
<td>13</td>
<td>13</td>
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<td>Recoup Yr.</td>
<td>13</td>
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Is This Scenario Optimistic?

- Fruit Size has declined a size in Italy when hedgers are used every year.
- Terence recommends dormant pruning in detail once every 3 years, to compensate for only summer pruning with a hedger.
- This projection assumes that fruit size will be maintained by detailed dormant pruning once every 3 years using an Over the Row Platform.
Further Study Required

• We need to more thoroughly study the benefits of platform use on:
  – Employee preferences (job becomes more pleasant)
    • Trudging thru snow, lugging equipment around when using ladders
  – Changes in management practices
  – Avoiding repetitive motion injury
  – To what extent can we truly eliminate hand labor
  – Effect of total mechanization on fruit size
  – Improving harvest efficiency