**Tables 1-9 for 2013 FINAL SARE REPORT – June 15, 2014**

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**ONE12-165: “Measuring and Extending the Benefits of Orchard Mechanization through On-Farm Research and Demonstration Plots in Western NY”**

Table 1. % Reduction of labor for pruning by using a mounted platform with two people.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Treatment** | **Section of tree pruned** | **# Trees per cultivar** | **Start time** | **End time** | **Total minutes** | **Min/tree** | **% Reduction of labor for pruning** |
| Mounted platform (2 people) | Tops | 12 HC and 13 Gala | 3:27pm | 3:31pm | 4 | 0.24 min/tree | **37%** |
| Bottoms | 12 HC and 13 Gala | 3:34pm | 3:36pm | 2 |  |  |
| Ladders (same 2 people) | All (tops and bottoms) | 51 HC and 53 Gala | 3:40pm | 3:50pm | 10 | 0.4min/tree |  |
| Mounted platform (2 people) | Tops | 51 HC and 53 Gala | 4:02pm | 4:20pm | 18 | 0.25min/tree | **37%** |
| Bottoms | 51 HC and 53 Gala | 4:22pm | 4:30pm | 8 |  |  |

Table 2. % Reduction of labor for pruning by using an over-the-row platform with 4 people.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Treatment** | **Section of tree pruned** | **# Trees per cultivar** | **Start time** | **End time** | **Total minutes** | **Min/tree** | **% Reduction of labor for pruning** |
| Over-the-row platform (4 people) | Tops | 220 Macoun trees | 7:18am | 7:35am | 17 | 0.18min/tree | **47%** |
| Bottoms | 220 Macoun trees | 7:38am | 8:01am | 23 |  |  |
| Ladders (same 4 people) | All (tops and bottoms) | 76 Macoun trees | 8:14am | 8:40am | 26 | 0.34min/tree |  |

Table 3. % Reduction of labor for hand thinning of tops of Gala and Honeycrisp trees.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Treatment** | **Section of tree hand-thinned** | **# Trees/Cultivar** | **Total time (minutes)** | **Ratio (minute/tree) for hand thinning tops** | **% Reduction of labor for hand thinning tops** |
| Over-the-row platform with 4 people | Tops | 668 Gala trees | 137 minutes | 0.2 minutes/tree | **50% reduction** |
| Ladder with 4 people | Tops | 10 Gala trees | 4 minutes | 0.4 minutes/tree |  |
| Over-the-row platform with 4 people | Tops | 1148 Honeycrisp trees | 131 minutes | 0.11 minutes/tree | **45%**  **reduction** |
| Ladder with 4 people | Tops | 10 Honeycrisp trees | 4.5 minutes | 0.45 minutes/tree |  |

Table 4. # Cuts per tree and # fruit on the ground per tree after shearing treatments were conducted for Gala and Linda Mac in the summer of 2012.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Treatment** | **Gala** | | **Linda Mac** | |
| **# Cuts/Tree** | **# Fruit on the ground per tree** | **# Cuts/Tree** | **# Fruit on the ground per tree** |
| June (16”-18” hedged from the trunk) | 15 | 7 | 16 | 1 |
| June (24”-26” hedged from the trunk) | 7 | 3 | 7 | 2 |
| July (16”-18” hedged from the trunk) | 13 | 6 | 12 | 3 |
| July (24”-26” hedged from the trunk) | 6 | 2 | 4 | 0 |
| August (16”-18” hedged from the trunk) | 11 | 9 | 13 | 3 |
| August (24”-26” hedged from the trunk) | 4 | 2 | 4 | 0 |

Table 5. # Cuts per tree and # fruit on the ground per tree after shearing treatments were conducted for Gala and Linda Mac in the summer of 2013.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Treatment** | **Gala** | | **Linda Mac** | |
| **# Cuts/Tree** | **# Fruit on the ground per tree** | **# Cuts/Tree** | **# Fruit on the ground per tree** |
| June (24”-26” hedged from the trunk) | 15 | 5 | 17 | 6 |
| July (24”-26” hedged from the trunk) | 11 | 4 | 13 | 5 |
| August (24”-26” hedged from the trunk) | 10 | 4 | 10 | 5 |

Table 6. # Flower buds and shoots (length) per cut induced in response to the summer shearing treatments conducted in 2012.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Treatment** | **Gala** | | **Linda Mac** | |
| **# Flower buds per cut** | **Shoot length (inches) per cut** | **# Flower buds per cut** | **Shoot length (inches) per cut** |
| June (16”-18” hedged from the trunk) | 2.13 | 10.5 | 2.19 | 9.24 |
| June (24”-26” hedged from the trunk) | 2.46 | 11.09 | 2.45 | 9.81 |
| July (16”-18” hedged from the trunk) | 1.91 | 10.24 | 2.08 | 9 |
| July (24”-26” hedged from the trunk) | 2.31 | 10.66 | 2.32 | 8.36 |
| August (16”-18” hedged from the trunk) | 2.14 | 10.11 | 1.96 | 7.39 |
| August (24”-26” hedged from the trunk) | 2.42 | 10.36 | 2.29 | 7.71 |

Table 7. # Flower buds and shoots (length) per cut induced in response to the summer shearing treatments conducted in 2013.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Treatment** | **Gala** | | **Linda Mac** | |
| **# Flower buds per cut** | **Shoot length (inches) per cut** | **# Flower buds per cut** | **Shoot length (inches) per cut** |
| June (24”-26” hedged from the trunk) | 0.31 | 2.54 | 0.05 | 2.2 |
| July (24”-26” hedged from the trunk) | 0.36 | 0.32 | 0.12 | 0.16 |
| August (24”-26” hedged from the trunk) | 0.79 | 0.36 | 0.49 | 0.81 |

Table 8. Gala harvest evaluation - September 2012.

|  |  |  |
| --- | --- | --- |
| **Treatment** | **# Fruit** | **Fruit Weight (kg)** |
| Un-sheared (control) | 685 | 125 |
| June (16”-18” hedged from the trunk) | 494 | 90 |
| June (24”-26” hedged from the trunk) | 528 | 98 |
| July (16”-18” hedged from the trunk) | 485 | 91 |
| July (24”-26” hedged from the trunk) | 610 | 105 |
| August (16”-18” hedged from the trunk) | 523 | 95 |
| August (24”-26” hedged from the trunk) | 567 | 103 |

Table 9. Gala and Linda Mac harvest evaluation – September 2013.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Treatment** | **Gala** | | **Linda Mac** | |
| **# Fruit** | **Fruit Weight (kg)** | **# Fruit** | **Fruit Weight (kg)** |
| Un-sheared (control) | 591 | 97 | 526 | 99 |
| June (hedged 24”-26” from the trunk) | 520 | 83 | 571 | 103 |
| July (hedged 24”-26” from the trunk) | 493 | 78 | 444 | 85 |
| August (hedged 24”-26” from the trunk) | 484 | 75 | 380 | 69 |