**Reduced Tillage Project Verification Form**

Participant Name:\_\_\_\_Brian Reeves\_\_\_\_\_\_\_\_\_\_\_\_ Farm Name: \_\_Reeve’s Farm\_\_

Mailing Address: \_\_\_\_\_\_\_\_1100 Reeves Rd., Baldwinsville, NY\_\_\_\_\_\_\_\_\_\_\_\_\_

Phone: \_\_\_\_315-243-1660\_\_\_ Email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_Dec 2011\_

Years using RT: \_\_\_\_\_ Total Veg. Acres: \_\_250\_\_\_\_ RT Veg Acres: \_\_\_\_\_\_

Plan to expand vegetable acreage Reduced Tilled: YES \_\_\_ NO \_\_\_

If yes, to how many acres: \_\_\_\_\_\_\_\_\_

Make/Model of Reduced Tillage Equipment Purchased/rented:

Estimated Costs:

|  |  |
| --- | --- |
|  | **Costs per acre ($)** |
| **Item** | **Conventional** | **Reduced Tillage** |
| Fuel for primary and secondary tillage |  | ½ fuel usage |
| Labor for primary and secondary tillage |  |  |
| Equipment Costs for tillage |  |  |
|  |  |  |

Yield Estimates:

|  |  |  |
| --- | --- | --- |
|  |  | **Yield per acre ($)** |
| **Crop** | ***P. capsici* present?** | **Conventional** | **Reduced Tillage** |
| Peppers | Yes |  |  |
| Sweet corn | Yes |  |  |

Benefits observed of reduced tillage system for vegetables:

Challenges or concerns of reduced tillage for vegetables:

Other comments:

Brian’s conventional tillage method consists of moldboard plowing followed by two cultivations. He has 250 acres (150 additional acres in rotation with a rye or clover cover crop) on which 80 acres are strip tilled sweet corn and around 35 acres of cucurbits and peppers. He currently undergoes a tillage cycle that begins with moldboard plowing in the Spring —it is hard to put down plastic if the soil is not loose due to the presence of sod, rye or clover— followed by DZT in the Fall, to break up the plow pan formed in the Spring, before planting a rye cover crop. Brian aspires to conduct DZT in the Fall on rye and then make beds in the Spring, without any other tillage. He wants to reduce tillage to improve organic matter in his soil and reduce his reliance of fertilizer.

Brian borrowed our Yeoman’s plow with 3 straight leg, deep-ripping shanks that he used on a 100 horsepower tractor. Brian currently owns a 6 row Unververth, used for sweet corn, and a DMI 730B deep ripper with multiple gangs of deep ripping teeth along with deep and parabolic teeth (not as deep) and hilling disks to make humps of soil over ripped valleys leveling the ground in the Spring after the Winter thaw. Brian used the deep zone tillers before or with an outfitted unit to simultaneously make plastic covered planting beds. He planted tomatoes, squash and peppers using the Yeoman’s plow and Unververth. We were unable to use the data from the tomatoes and squash as the trial was designed without a side-by-side comparison. The peppers were the only crop with a uniform comparison and were sampled.

The peppers were the most uniform stand with no pests and animals and a paired comparison of the same variety planted in conventional and DZT tillage treatments. In the pepper plots, 2 rows were tilled with the Yeoman’s and 1 row with the Unververth. A cover crop was grown in the alleyways though after the amount of driving over the same area the cover crop was killed and the soil compacted heavily. Brian also saw an increase in grass pressure in the DZT areas, though it did not become a problem until the fourth harvest, 2 months after planting.

Brian observed that the soil under the DZT plastic was lumpy and uneven as compared with the conventional, which had more uniform soil. The plastic and drip tape laid well in both treatments. He reported that DZT cost him 1/3 the amount of labor and approximately ½ the fuel usage.

Brian has *Phytophthora capsici* present in all of his soil but finds that it is only really a problem late in the season (due to careful management) when zucchini and squash are picked from the end of the vines (no longer resting on the plastic). He observed no differences in disease pressure between Phytophthora susceptible plants in DZT and conventional. There were also no observed drainage differences between DZT and Conventional plots.

Brian has stated he wants to conduct trials again in 2012. He said that one of the main reasons he signed on to do a Yeoman’s and Unververth trial was because he was allowed enough time to adjust the machines at his leisure and was able to wait until the ideal day to conduct DZT. He states that both the Yeoman’s and the Unververth have potential for RT and laying plastic, with the Unververth capable of tilling multiple rows with more efficiency.

 This spring, Brian is planning on growing peppers, squash, tomatoes and maybe cucumbers. Instead of moldboard plowing and two passes of disking, Brian is thinking of taking his deep ripper and tilling all ground but with one pass leaving the between rows bare, stating that growing a cover crop in the bare ground between rows was foolish considering the area was driven over 6 times, killing an cover crop that was there and compacting the soil. He wants to break up that compaction later with deep ripping shanks. 3 beds at once, save fuel and carbonization because the ground is only stirred once,

2 acres worth and 24 rows of plastic, and rest of field conventionally