Yahara Pride Farms

2018 Phosphorus Reduction Report

Yahara Pride Board of Directors

July 8, 19

Executive Summary

What the data represents

This report provides the data and summary information for the 41 farms (up from 35 in 2017) cooperating in the 2018 Yahara Pride Farms (YPF) cost share program. In 2018 there were 8 new farms in the program. There were also farms that implemented practices but did not provide a SNAP+ file for evaluation or payment. The information provided is based on the difference in predicted phosphorus loss from the adoption of a practice such as strip tillage, low disturbance manure injection, cover crops, headland stacking of manure, or combination of two. The 2018 data is based off the "SNAP+" plans provided to YPF by the farmers and/or their crop advisors.

All of the data presented in this report are derived from the individual farms nutrient management plan, which takes into account tillage, crop rotations, and nutrient applications from both manure and fertilizer, and crop yields. This is the best representation of what is actually happening on the farms that participate in the Yahara Pride Cost Share program. Each farm and field has unique characteristics that influence yields, the tillage system and the risks for sediment and nutrient loss. That is why we see such large variation in losses within this data set.

Summary of phosphorus reductions for each cost share program:

1. **Cover Crops**

Table 1 shows a comparison of the number of farms, acres and phosphorus reductions achieved through the **cover crop program** from 2013 to 2018.

Year	2013	2014	2015	2016	2017	**2018**
Farms	20	37	35	37	33	**37**
Fields	80	53	160	290	212	**274**
Acres	2,436	4,732	4,908	5,851	4,483	**7,294**
Average (lbs/acre)	0.7	0.8	1.8	1.5	1.8	**2.1**
Total P reduction (In pounds)	1,730	3,691	6,572	7,130	7,300	**11,497**

Table 1 Number of farms, acres and phosphorus reductions through the cover crop program

Despite challenging weather conditions, the number of farms, fields and acres cooperating in the cover crop program grew significantly in 2018. The information in the above table does not take into account the number of acres planted to a cover crop after low disturbance deep tillage. The next section of the report provides the data from the LDDT + cover crop.

2. **Low disturbance deep tillage with planting of a cover crop**

Table 2 shows a comparison of the **low disturbance deep tillage plus cover crop program** (LDDT), which was first offered to farmers in the watershed in 2016. Interest in this program continues to grow and the YPF board of directors feels it is important to encourage reduced tillage when conducting deep tillage.

Year	2016	2017	**2018**
Farms	8	11	**7**
Fields	?	52	**24**
Acres	730	956	**448**
Average (lbs/acre)	1.48	2.2	**2.6**
Total P reduction (In pounds)	1,080	1,981	**1,165**

Table 2 Number of farms, acres and phosphorus reductions through the LDDT + cover crop program

3. **Low disturbance manure injection**

Table 3 shows a comparison of the number of farms, acres and phosphorus reductions achieved through the **low disturbance manure injection program** from 2013 to 2018.

Low Disturbance Manure Injection Program	2013	2014	2015	2016	2017	**2018**
Number of farms	11	14	4	7	15	**15**
Number of fields	20	20	32	76	223	**196**
Tillable acres in program	361	841	566	1,203	3,885	**3,293**
Average phosphorus reduction (lbs./acre)	1.0	0.6	1.9	0.9	1.4	**1.1**
Total phosphorus reduction (in pounds)	357	530	1,081	1,106	6,039	**3,945**

Table 3 Number of farms, acres and phosphorus reductions through the LDMI program

The LDMI program was fairly stable in regards to acres and fields this year compared to previous years. This could be due to challenging weather conditions in the fall and spring, which decreases the amount of time available for manure application.

4. Strip Tillage

The table 4 shows a comparison of the number of farms, acres and phosphorus reductions achieved through **strip tillage program** from 2013 to 2018.

Strip Tillage Program	2013	2014	2015	2016	2017	**2018**
Number of farms	3	3	3	3	4	**3**
Number of fields	11	15	20	21	35	**39**
Tillable acres in program	156	253	1,489	917	1,829	**2,422**
Average phosphorus reduction (lbs./acre)	1.4	0.9	0.8	0.9	0.8	**1.3**
Total phosphorus reduction (in pounds)	225	220	1,221	703	1,458	**3,110**

Table 4 Number of farms, acres and phosphorus reductions through strip tillage program

Strip tillage grew to the largest number of acres since the beginning of the cost share program. The average phosphorus reduction grew this year compare to the previous 4 years and compares to the first year of the cost share program. This year strip tillage cost share program had the largest reduction in the risk of phosphorus loss in the history of the program.

5. Manure stacking and/or composting

Table 5 shows a comparison of the reduction in the risk of phosphorus loss from **manure stacking and/or composting during the critical runoff period.** This program was first offered to farmers in the watershed in 2016. Interest in this program continues to grow and the YPF board of directors feels it is important to encourage farmers to not apply manure during high-risk periods. This practice is also one that has a significant reduction in soluble phosphorus loss.

Year	2016	2017	**2018**
Farms	1	9	**9**
Fields	1	9	**44**
Acres	50.4	301	**898**
Average (lbs/acre)	2.1	2.1	**2.0**
Total P reduction (In pounds)	106	665	**1,855**

Table 5 Number of farms, acres and phosphorus reductions through the LDDT + cover crop program

6. **Combining practices**

In 2018 YPF provided a bonus payment for farms that either combined two practices on a field (one practice was always cover crops while the second practice was either strip tillage or LDMI). On some fields there is not calculated benefit to combining practices when you take into account the individual benefits of each practice. However, there are fields where the benefit of adopting two practices was greater than the individual benefits of both practices.

In 2018, the average predicted phosphorus reduction for combining two practices was **0.8 pounds per acre**. This year's data set contained 98 fields totaling 2,010 acres. This reduction in phosphorus is over and above the phosphorus reductions for each of the two practices. The individual practice reductions are included in corresponding data sets.

2018 Summary of Predicted Phosphorus Reduction

Practice	Average P Reduction	Total Predicted P Reduction
➢ Cover Crops	2.1	11,497 lbs
➢ LDDT + cover crop	2.6	1,165 lbs
➢ LDMI	1.1	3,945 lbs
➢ Strip Tillage	1.3	3,110 lbs
➢ Headland Stacking Manure	2.0	1,855 lbs
➢ Combined Practices	0.8	525 lbs
	Total	22,097 lbs