

Yahara Pride Farms 2017 Phosphorus Reduction Report



Executive Summary

Yahara Pride Board of Directors

June 11, 2018

Executive Summary

What the data represents

This report provides the data and summary information for the 35 farms cooperating in the 2017 Yahara Pride Farms (YPF) cost share program. In 2017 there were 4 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 2017 data is based off the “SNAP+” plans provided to YPF by the farmers and/or their crop advisors.

All the data presented in this report are derived from the individual farms nutrient management plan, which takes into account tillage, crop rotations, 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

Table 1 shows a comparison of the number of farms, acres and phosphorus reductions achieved through the **cover crop program** from 2013 to 2017.

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

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

In 2017 there was a reduction in the number of farms cooperating in the cover crop program. This could be due to weather conditions, timing of planting or the general farm economy. However, the acres reported in 2016 in table 1 contained both the acres planted with just a cover crop and the acres with low disturbance deep tillage and a cover crop. Therefore, a more accurate comparison would be to add the two together, which yields:

- 2016 5,851 acres with cover crops 7,130 pounds of P reduced
- **2017** **5,439 acres with cover crops** **9,281 pounds of P reduced**

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. In the 2016 YPF Phosphorus report the acres implemented using LDDT

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

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

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 2017.

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

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

The LDMI program grew at a tremendous rate this year compared to previous years. Much of this is due to the cost share program for the purchase of LDMI equipment. It is clear that in the future there will continue to be an increase in LDMI acres.

The table 4 shows a comparison of the number of farms, acres and phosphorus reductions achieved through **strip tillage program** from 2013 to 2017.

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

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. It appears that the average phosphorus reduction is very stable (around 0.85 pounds per acre). This year strip tillage had the largest reduction in the history of the program.

Yahara Pride Farms also provided an incentive payment for farmers who did not apply manure during the critical runoff period (on frozen or snow cover ground). They also provided this payment in 2016 and had one cooperator who did not apply manure on 50.4 acres. This yielded a phosphorus reduction of 2.1 pound per acre and had the greatest impact on soluble phosphorus loss.

In 2017, headland stacking had 9 farms participating in the program. There was a total of 301 acres of land where manure was not applied during the critical runoff period. Some of the cooperating farms were farms that had a WPDES permit so they could not apply manure during this period. In 2017 the average reduction of phosphorus was 2.1 pounds per acre (same as in 2016) and the total reduction in the risk of phosphorus loss was 665 pounds.

In 2017 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). In 2017, the average predicted phosphorus reduction for combining two practices was **0.9 pounds per acre**. This year’s data set contained 66 fields totaling 1,704 acres. This reduction in phosphorus is over and above the individual practice data set.

2017 Summary of Predicted Phosphorus Reduction

<u>Practice</u>	<u>Average P Reduction</u>	<u>Total Predicted P Reduction</u>
➤ Cover Crops	1.8	7,300 lbs
➤ LDDT + cover crop	2.2	1,981 lbs
➤ LDMI	0.9	6,039 lbs
➤ Strip Tillage	0.8	1,458 lbs
➤ Headland Stacking Manure	2.1	665 lbs
➤ Combined Practices	0.9	<u>1,416 lbs</u>
	Total	18,859 lbs

Yahara Pride Farms – Phosphorus Reduction by Sub-Watershed Addendum to the 2017 Phosphorus Report

Dennis Frame
June 11, 2018

1. Reduction of the risk of phosphorus loss from cover crops
 - a. 62 – 57.3 pounds
 - b. 63 – 246.3 pounds
 - c. 64 – 6,033.0 pounds
 - d. 65 – 319.4 pounds
 - e. 66 – 275.7 pounds
 - f. 69 – 368.1 pounds

Total 7,299.8 pounds

2. Reduction of the risk of phosphorus loss from low disturbance deep tillage + cover crop
 - a. 62 - 297.8 pounds
 - b. 64 - 1,683.0 pounds

Total 1,980.8 pounds

3. Reduction of the risk of phosphorus loss from low disturbance manure injection
 - a. 63 – 2,519.9 pounds
 - b. 64 – 3,508.4 pounds
 - c. 65 – 5.4 pounds
 - d. 66 – 5.5 pounds

Total 6,039.2 pounds

4. Reduction of the risk of phosphorus loss from strip tillage
 - a. 64 - 1,175.9 pounds
 - b. 69 - 281.7 pounds

Total 1,457.6 pounds

5. Reduction of the risk of phosphorus loss from manure stacking
 - a. 63 - 74.6 pounds
 - b. 64 - 590.5 pounds

Total 665.1 pounds

6. Reduction of the risk of phosphorus loss from combined practices
 - a. 64 – 990.6 pounds
 - b. 65 – 6.0 pounds
 - c. 66 – 8.0 pounds
 - d. 69 – 411.5 pounds

Total 1,416.1 pounds