Yahara Pride Farms was honored by the The Innovation Center for U.S. Dairy during its fifth annual U.S. Dairy Sustainability Awards ceremony May 11 in Chicago. The program recognizes dairy farms, businesses and partnerships whose sustainable practices positively impact the health and well-being of customers, communities, animals and the environment. Yahara Pride Farms received the award for Outstanding Achievement in Resource Stewardship.

Yahara Pride Farms brings together farmers, agronomists and UW Extension along with local municipal services, water advocates and businesses to proactively support community and environmental health and fiscal sustainability. This rapidly growing partnership focuses on soil conservation and effective manure management in order to improve land and waterways in Dane County, Wis.

A voluntary certification program recognizes individual farms for nutrient management successes, and educational events share best practices for preserving soil and water quality. One of the most innovative solutions implemented by Yahara Pride Farms is a cost-sharing program giving farmers the opportunity to test new technologies with minimized risk. In 2015, farmers in the program documented the adoption of practices that reduced phosphorus delivery by 8,642 lbs. Since 2012, farmers have documented a total phosphorus delivery reduction of 15,872 lbs.

“Clean water is critical to the community and to agriculture. As farmers we play a role in water quality,” said Jeff Endres, chairman of Yahara Pride Farms. “Part of our success stems from the group’s ability to work together toward a solution without pointing fingers.”

More than 45 farms in the Yahara watershed participate in the program. The watershed begins in southern Columbia County, through Dane County and extends into northern Rock County. In addition to a rich farming history, the urban Yahara watershed is also home to Madison, surrounding suburbs and the University of Wisconsin.

Judges for the U.S. Sustainability Awards evaluated the nominees’ sustainability practices based on their economic, environmental and community impact, also known as triple-bottom-line success. The independent judging panel also looked for learning, innovation, improvement, scalability and replicability.
This issue of the Forward Farmer features news on many exciting things happening with Yahara Pride Farms. Today, just as in the beginning, we strive to stay true to our mission and purpose.

**Mission:**
Yahara Pride Farms is a farmer-led, not-for-profit organization working to improve soil and water quality. We strive to help advance new ideas and technology that balance water quality improvement with farm sustainability and profitability.

**What we strive to do:**
1. Create a mechanism to recognize farmer-led environmental sustainability, reward farmers for good stewardship, track collective progress in conservation and demonstrate watershed advancement.
2. Through our farmer network of information sharing, help inform the agricultural industry of new water quality rules, laws and issues.
3. Earn the trust and respect of farmers, private citizens and government through engaging them in our projects and educational programs that demonstrate how the agricultural industry is committed to doing its fair share in making improvements in the watershed.
4. Create the Yahara Pride brand and grow its recognition among both urban and rural communities.

Over the last four years we have built relationships with farmers, crop consultants, agribusiness, government agencies, urban interest groups and the general public - all with a positive perspective on agriculture.

The Yahara Pride Farms board believes it is important for agriculture to continue a proactive approach toward improving both surface and ground water quality. It’s important to the future sustainability of our farms.

Programs created by Yahara Pride Farms are designed to allow farmers to try new technologies at a minimal personal expense. The hope is that new technologies stand the test of time and will be permanently implemented on the majority of farms.

It is also very important that we keep records of water quality improvements on our farms. Agriculture is one of several keys to water quality, and going forward, farms need to be able to differentiate themselves from other factors. Regulations have been crafted such that improvements must be seen in streams and rivers in the watershed over the next 20 years. Yahara Pride Farms has created a method of tabulating phosphorus savings on the land and are working with UW Discovery Farms on tracking nitrogen use efficiencies.

I want to thank all the farmers who participated in our programs over the past four years. Our accomplishments are being recognized locally, statewide and even across the country.

- Jeff
Yahara Pride Farms (YPF) has a very active cost-share program, which provides funds to farmers who are interested in experimenting with a new practice. The 2015 program provided funds for cover cropping (up to 50 acres at $40/acre); strip tillage (up to 20 acres at $20/acre); low disturbance manure incorporation (up to 50 acres at $15/acre) and headland stacking of manure ($1.50/ton of manure stacked).

Each year, YPF writes a phosphorus reduction report that is submitted to Yahara WINs, the organization that provides the cost-share funds. This report contains information on how each practice reduced phosphorus loss when compared to the previous farming system. For example, a field planted and harvested as corn silage and fall chiseled as the prior practice; compared to planted, harvested as corn silage, no-till planted into a cover crop and spring tilled.

The report uses information from each farms SNAP plan and evaluates the difference between estimated phosphorus loss under the old farming system and the new system. The table below contains a summary of the data and the phosphorus savings for each of the three cost-shared practices (LDMI – Low Disturbance Manure Incorporation). It also shows how farms that use several practices on the same field (cover crops and strip tillage, or LDMI) have a greater phosphorus savings than any one practice.

The final column has data from 10 fields that had 5 – 6 years of a practice applied. The important point for this information is that the 4.68 pounds of phosphorus saved accounts only for the last year in the rotation. It does not take into account the phosphorus saved during each year of the rotation.

<table>
<thead>
<tr>
<th>2015 Phosphorus Report</th>
<th>LDMI</th>
<th>Strip Tillage</th>
<th>Cover Crops</th>
<th>Combined Practices</th>
<th>Multiple Years of Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fields</td>
<td>32</td>
<td>20</td>
<td>160</td>
<td>34</td>
<td>10</td>
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<tr>
<td>Acres</td>
<td>566</td>
<td>1,488.6</td>
<td>4,908</td>
<td>1,605.5</td>
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<tr>
<td>Range in P reduction/acre</td>
<td>-0.6 - 5.9</td>
<td>0.1 - 5.6</td>
<td>-1.0 - 13.4</td>
<td>-0.3 - 8.7</td>
<td>0 - 9.3</td>
</tr>
<tr>
<td>Average P reduction/acre</td>
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<td>.8</td>
<td>1.8</td>
<td>2.14</td>
<td>4.68</td>
</tr>
<tr>
<td>Total P Reduced by the practice</td>
<td>1,080</td>
<td>990.4</td>
<td>6,572</td>
<td>1,693.2</td>
<td>738.7</td>
</tr>
</tbody>
</table>

Farmers reduce phosphorus delivery by 8,642 lbs in 2015

By Dennis Frame, YPF conservation resource manager

Three major practices are supported for cost-share dollars: Strip tillage, low disturbance manure injection and cover crops.

**Strip Tillage** is a conservation system that uses minimum tillage. Farmers use strip tillage as a way to combine the soil-drying and warming benefits of conventional tillage with the soil-protecting advantages of no-till. Strip tillage can be easily identified in the field by looking for darker, disturbed soil only in the portion of rows that will contain the seeds.

**Low-Disturbance Manure Injection** places manure below the surface where it adds nutrients to the soil and avoids adding phosphorus to waterways. Surface application of manure is more susceptible to run-off, whereas injecting or incorporating manure into the soil minimally disturbs the soil while decreasing the likelihood of runoff. 566 tillable acres were enrolled with an average phosphorus reduction of 1.7 pounds/acre, resulting in 1,080 pounds of phosphorus reduction in the Yahara watershed.

**Cover crops** are grasses, legumes, small grains or other crops grown between regular grain crop production periods for the purpose of protecting and improving the soil. One of the major reasons for growing winter cover crops is to reduce soil erosion. The most common cover crops in our region are fall-seeded cereals, such as rye or wheat, and fall-seeded annual ryegrass.

Thirty-five farms, with 4,908 acres, participated in the cover crop program. Phosphorus reduced was 1.8 pounds/acre with a total of 6,572 pounds.

Strip tillage, low-disturbance manure injection and cover crops are all great practices to reduce phosphorus runoff. Even more exciting are the results realized from multiple years in the program. With each growing season, YPF certified farmers are learning what practices work best for their farms. One this is certain, conservation practices are beneficial for farmers and the entire watershed. In total, Phosphorus delivery was reduced by 8,642 lbs in 2015!
Like many watersheds, water quality in the Yahara watershed is impacted by too much phosphorus. Phosphorus comes from many sources, including urban stormwater, discharges from wastewater treatment plants and industries and agricultural runoff.

All of these sources care about water quality and have worked hard to make improvements in the Yahara watershed. While each source uses different terms to describe their actions (e.g. farmers might talk about water quality in terms of maintaining or improving soil health), the end result is that great progress has been made in the watershed to improve water quality. Even with our progress, additional phosphorus reductions are required by all sources to meet water quality goals established by the Wisconsin Department of Natural Resources and the United States Environmental Protection Agency.

Typically, each of the above sources works independently to reduce phosphorus. The result is discharged-focused solutions that are oftentimes very expensive, narrowly focused, and are unlikely to meet the overall water quality objectives for the watershed.

A different approach is needed to get us to the next level of water quality improvement in the watershed. For the past four years, Madison Metropolitan Sewerage District has been working with Yahara Pride Farms, cities, villages, towns and other partners to test a new, collaborative approach.Called the Yahara Watershed Improvement Network (Yahara WINs), this collaborative effort started in 2012 with a pilot project in the Six Mile Creek subwatershed, located northwest of Lake Mendota.

In the Yahara WINs pilot project, funding was provided to Yahara Pride Farms to help farmers test phosphorus reduction practices such as the use of cover crops, strip tillage and low disturbance manure injection. Cost sharing was also provided to urban sources to support phosphorus reductions through increased construction site erosion inspections, stormwater treatment, prairie restoration and other activities.

This Yahara WINs project is now transitioning to a full scale project that will focus on the entire Yahara watershed. The Yahara WINs phosphorus reduction effort will focus on advancing a mix of urban and rural phosphorus reduction efforts. For example, cities, villages and towns that are participating in this effort will be required to achieve a portion of their phosphorus reduction within their urbanized area, and wastewater treatment plants will need to achieve a portion of their phosphorus reduction at the treatment plant. However, some funding from these sources will also be pooled and invested in phosphorus reduction opportunities throughout the watershed.

Yahara Pride Farms has been a strong partner in the Yahara WINs effort. By working together we can continue to promote actions that are cost effective, make good business sense for farmers, improve soil health and improve water quality. We can have it all!

Clean Lakes Alliance update

Clean Lakes Alliance released the 2015 State of the Lakes report at the Save Our Lakes breakfast in early May. Jeff Endres and Scott and Daun Maier were in attendance representing Yahara Pride Farms at the Dairy Business Milk Marketing Cooperative table with Lauren Brey and Maria Woldt.

In 2015, partners in the Yahara watershed reached 18% of our goal to cut phosphorus going into our lakes by half by the year 2025. That’s 8,200 pounds of phosphorus, equivalent to 4 MILLION pounds of algae. None of this would be possible without the hard work of farmers.

We also recognize that we are dealing with challenges. Intense rainstorms wash more phosphorus into the water. Invasive species like the spiny water flea disrupt the food web in our lakes. And we know that farmers face challenges like the growing price of land and lack of manure storage.

On the afternoon of the breakfast, we headed over to the Clean Fuel Partners digester in Waunakee for a press conference and a tour, including remarks by Chuck Ripp. On Thursday, Aug 9, we’ll be hosting a Yahara Lakes 101 science café about digesters: what they are, how they work, and how they fit into our community’s manure management toolbox. In September, we’ll be partnering with Yahara Pride Farms to host a Farm & Digester Tour in Waunakee. Our hope is that programs like these will help bridge the knowledge gap for urban residents who may not know much about farming.

We’re grateful to be able to continue to partner with Yahara Pride Farms. Thank you for all that you are doing to help make healthy lakes, healthy communities a reality.
Cover crops: Experience helps avoid potential pitfalls
By Heidi Johnson, Dane County UW-Extension crops and soils agent

There has been a lot of discussion lately about the benefits of using cover crops. They protect soil from erosion, scavenge important crop nutrients and provide a green manure that helps to feed the soil microbial community and improve soil quality over time. However, because cover crops are growing between cash crop seasons, cover crop management decisions can influence the success of the cash crop and sometimes can cause problems for cash crop establishment. One potential impact is through allelopathy.

Allelopathy is when one plant produces chemicals that inhibit the growth of another plant. Based on laboratory studies, we know that grasses we use as cover crops - oats, barley and rye, produce allelopathic chemicals that can inhibit the growth of other plants. However, problems are usually not widespread. But this year it seems that allelopathy is contributing to issues with new seedings of alfalfa.

There have been many reports of new seedings failing this spring across southern Wisconsin. These reports are not just coming from cover cropped fields, and the dry and cold spring has certainly created less than ideal conditions all new seedings. However, there have been many reports of failed stands after a rye cover crop. One field in particular that was planted half to a barley cover crop and half to a rye cover crop gave us the biggest indication that allelopathy is contributing to stand failure. The part of the field that had been barley had a decent alfalfa stand but where the rye had been there was almost no alfalfa and almost no weeds. Allelopathy can also inhibit weeds. So why did this happen? Here are several possible reasons:

1 THE COLD SPRING
Although most of the rye had been sprayed in late March, the cold weather led to a slow kill on the rye so there was a slow release of allelopathic chemicals. The cold soils had low biological activity so there was a slower breakdown of the allelopathic chemicals in the soil.

2 MINIMAL TILLAGE
Although conservation tillage is ideal for retaining residue, it leads to shallow soil mixing and shallow dispersion of the rye residue so the allelopathic chemicals remain concentrated in the upper few inches of soil. In one field that had this problem, half the field was field cultivated and half was vertical tilled. The side that was field cultivated had a much better alfalfa stand than the side that was vertical tilled. The other solution to this problem may be to not till at all. There have been several reports of fields were alfalfa was no till planted into a rye cover crop and they had no issues.

3 THE DRY SPRING
Allelopathic chemicals can be washed through the soil profile with adequate rain but we have been on the dry side this spring. Rye is also known to reduce spring soil moisture which may have led to dry conditions and possibly created more stress for new seedings.

4 SEED SIZE & PLACEMENT
Alfalfa is a small seeded crop and small seeded crops are more vulnerable to allelopathic chemicals. Cover crops like rye are probably better used before larger seeded crops like corn or soybeans. Deeper seed placement, by using a no-till drill, also helps by placing the crop seed out of the zone where the allelopathic chemicals are concentrated and more moisture is present. Fields that had been planted with a Brillion seemed to have suffered more this year because they were more shallowly planted. Although allelopathy likely played a role in the new seeding issues this year, it is always good to keep in mind that cover crops that overwinter, like rye, always have the possibility of changing spring soil conditions causing planting issues. They dry out the soil more and can create physical impediments to planting. Good management can help alleviate these issues.

Every year that a farmer uses cover crops provides more opportunities to adjust their management decisions to maximize positive impacts and minimize negative impacts on their cash crops. Understanding things like allelopathy can help to guide those decisions. Farmers can also learn from each other's experiences to shorten their cover crop learning curve.

If you're interested in learning more about cover crops from other farmers, join the Cover Crop Innovators. This is a group of farmers that gets together throughout the year to discuss cover crops and visit each other's cover cropped fields. To join, email or call me at heidi.johnson@ces.uwex.edu or 608-224-3716.
4th Annual Watershed-wide Conference focuses on soil health

By Natalie Endres & Katie Nicholas for YPF

On Thursday, March 3, YPF hosted its 4th Annual Watershed-wide Conference with the theme “Soil Health and Innovation in Our Watershed.” Area farmers and stakeholders gathered at the Comfort Inn and Suites in DeForest to learn about innovations in soil health and conservation from various speakers.

Cover crops are key
Heidi Johnson, Dane County UW-Extension, started off the conference with why and how cover crops are beneficial to farmers. Heidi discussed how to select cover crops, as well as the best timing for cover crop incorporation and use. Wheat provides the easiest opportunity to integrate cover crops after manure application with legumes (i.e. radishes) combined with a grass (i.e. oats and/or barley). Economic benefits of cover crop incorporation in the short-term and long-term and seed costs were also discussed.

Manage crops, manage water
Dr. Jerry Hatfield, USDA-ARS National Laboratory for Agriculture and Environment; Midwest Climate Hub, presented on the tools for improved watershed management including watershed scale problems and tools. As an example throughout his presentation, Dr. Hatfield referenced the Raccoon River Basin in Des Moines, Iowa, where nitrate levels in the Raccoon River have increased over time. Des Moines runs a reverse osmosis system to remove nitrates from drinking water. In this area, fertilizer application hasn’t increased much over time, and livestock numbers have actually decreased. However, cropping practices have changed from small grains and alfalfa to 87% soybeans and corn in the watershed’s agricultural land. “You can change nitrogen management all you want in the watershed, but you won’t see any changes until you change water management,” Dr. Hatfield said.

He also discussed the Agricultural Conservation Planning Framework (ACPF), a risk assessment for fields in the riparian zone. This framework provides a targeting approach for optimum benefit. Hatfield discussed practices for managing drain tile and water quality, including two-stage drainage ditches, nutrient interception wetlands, controlled drainage, and wood chip bioreactors.

Many partners, shared goals
Dave Taylor of Madison Metropolitan Sewerage District, discussed the Yahara WINs Adaptive Management Project. He credited the many partners, including cities, villages, towns and others involved in the effort and how YPF is working with Yahara WINs. Dave shared information on the Six Mile Creek Watershed pilot, which included the contribution of money to YPF for phosphorus reduction practices and for the support of YPF’s certification program. Dave provided rural and urban examples of the WINs practice implementation, including strip tillage, harvestable buffers, cover crops, and low disturbance manure injection in the rural landscape. Yahara WINs plans to expand the focus to the entire watershed with official startup in 2017, resulting in more funding to support phosphorus reduction practices and related efforts.

One size does not fit all
Dennis Frame, Yahara Pride Farms conservation resource manager, stressed how not all practices are the best fit for every farming operation, but he wants to meet with individual farmers to see...
what works for their farms. Dennis concluded his talk by discussing data security, privacy and use, detailing how data will be stored in a cloud-based system and farmers will own their data.

**Versatile compost**

Andy Skwor, of MSA Professional Services outlined the 2015 NCR SARE grant project performed on three farms in the Yahara watershed for manure composting. He explained how the grant was acquired and what equipment was used. Andy emphasized how the volume of solid manure changed over time through the composting process and discussed the raw temperature data taken from compost piles at three sites. At a temperature of 131 degrees pathogens and weed seeds are destroyed. An analysis showed that a large percentage of nitrogen content was in the organic form and not available for immediate uptake. The primary use of the compost is for field application, with heifer bedding as a secondary use. Other benefits of composting include increased soil biology, structure, water retention, organic percentage, and weed production control.

**Don’t tolerate soil loss**

Dr. Hatfield closed the conference with another presentation discussing residue, soil health, and cover crops. He emphasized how farmers shouldn’t tolerate soil loss. Dr. Hatfield detailed the “Soil Degradation Spiral”, which is a combination of steps that cause a soil to lose good characteristics like water holding capacity, aggregation, and biology. The “Soil Aggradation Climb”, represents the necessary steps to acquire soil with good characteristics that are lost in the soil degradation spiral. Dr. Hatfield emphasized how biological activity rebuilds soil - not physical or chemical manipulation. Crop residue (“passive” barrier) and cover crops (“active barriers”) can benefit soil biology and reduce erosion. Moderating climate can protect soil biology through carbon, water, and nitrogen cycles.

Thank you to our great speakers, dedicated farmers, and generous sponsors for helping make the 4th Annual Watershed-wide Conference a valuable event for all attendees.
Save the Date!
Summer Field Day
Aug. 16, 2016
Exact locations TBA
Waunakee/Middleton Area

- Attend three field demonstrations on different farms
- Transportation provided
- Dinner and program to follow demonstrations
- Rain date Aug. 17

Registration opens in July. Details at yaharapridefarms.org

By working together, we can continue to promote actions that are cost effective, make good business sense for farmers, improve soil health and improve water quality. We can have it all!

- Dave Taylor, MMSD