


Understanding Nutrient & Sediment Loss at Soaring Eagle Dairy - 2

Farm, Site and Study Design


Dennis Frame and Eric Cooley
UW Extension/Discovery Farms




Soaring Eagle Dairy (SED)




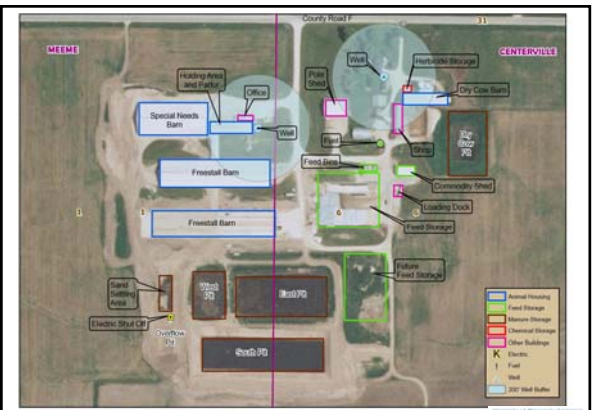
- Soaring Eagle Dairy is located 5 miles southeast of Newton or approximately 7 miles northwest of the village of Cleveland in Manitowoc County, Wisconsin.
- The dairy is owned by Jim and Sandie Fitzgerald; their three daughters, Kelly Goehring, Julie Maurer and Stacy Fitzgerald; and one son-in-law, Brian Goehring.




Soaring Eagle Dairy (SED)




- Since 1997 the farm has undergone several additional expansions, including a transition barn, another freestall barn and expanding the parlor to a double 16.
- The farm's primary agricultural product is milk, with a small portion of the product base coming from the sale of cull cows.

Soaring Eagle Dairy, Farmstead Map
Meeme Section 1, Centerville Section 6



Soaring Eagle Dairy (SED)



- The farm is located in the Point Creek subwatershed and the Lake Michigan watershed.
- Land surrounding SED is mostly used for agricultural purposes, nearest residence is approximately 500 feet to the northwest.


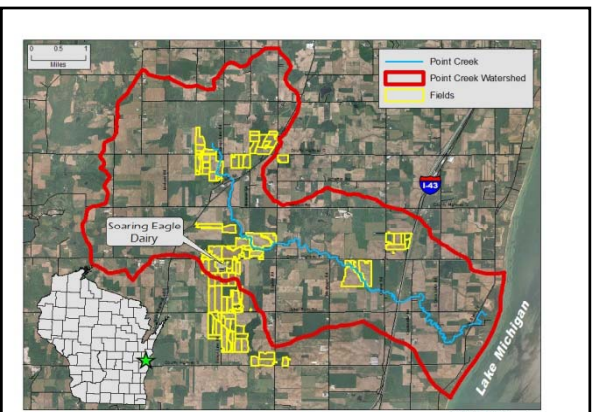







Figure 2: Point Creek Watershed







Soaring Eagle Dairy (SED)

- Approximately 1,120 acres of owned and rented cropland
- Applies nutrients in accordance with an approved phosphorus-based Nutrient Management Plan





Soaring Eagle Dairy (SED)

- Cropland is devoted to growing corn and alfalfa, both harvested as silage and stored in bunker silos.
- The typical crop rotation is two years of corn silage and three to four years of alfalfa.





Soaring Eagle Dairy (SED)

- Soil conditions and pH values are optimum for alfalfa production.
- The climate in northeastern Wisconsin includes an annual precipitation of 31 inches and a mean annual temperature of 45 degrees F.





Soaring Eagle Dairy (SED)

- Manure from all of the barns flows via a flume to a sand settling area.
- Sand is reused.
- The farm has at least 12 months of liquid storage, which are typically emptied once a year, during the fall.




Farm and site selection

- The selection criteria for this site included a strong emphasis on monitoring a relatively small watershed, so that the water quality data could be compared to data gathered from individual field sites.




Farm and site selection

- This was done in order to determine the accuracy of using field data to estimate losses on a watershed scale.




Farm and site selection



- Potential monitoring sites were evaluated based on the following:
 - Watershed size
 - Percent of cropland acres within the watershed managed by the cooperating farm
 - Is the land representative of the local area, and does it provide getaway conditions
 - Affect on the current farming practices
 - Access to the site

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Farm and site selection



- An ideal site would have all the land that contributes water into the monitoring equipment under the control of the cooperating producer in addition to a watershed size that was larger than 20 acres.
- While this is ideal, in the real world this rarely happens for larger, multi-field sites.

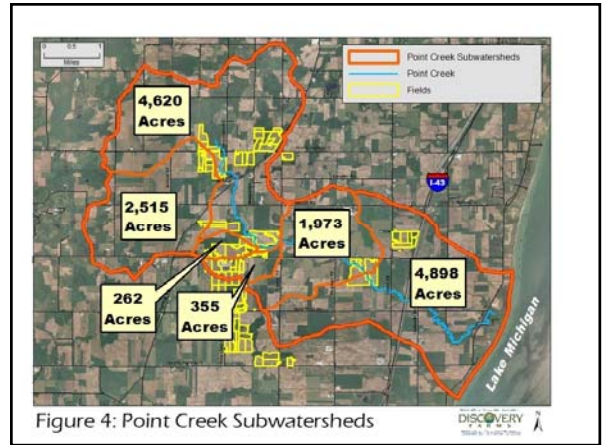
DISCOVERY FARM'S

Farm and site selection




- There were several challenges to site selection for the small watershed farm.
- Many of the sites were very large, and the tillable land within these watersheds was operated by a number of different producers.

DISCOVERY FARM'S




Farm and site selection



- Existing Manitowoc County data showed that the 262 acre subwatershed located across the road from the facilities offered what appeared to be the best location for a multi-field study.

DISCOVERY FARM'S

Farm and site selection



- This site had good field road access and was reasonably close to the highway.
- >70% of the land flowing into this intermittent stream was owned or rented by SED.
- The remaining 30% of the tillable acres were managed by just one other producer.

DISCOVERY FARM'S

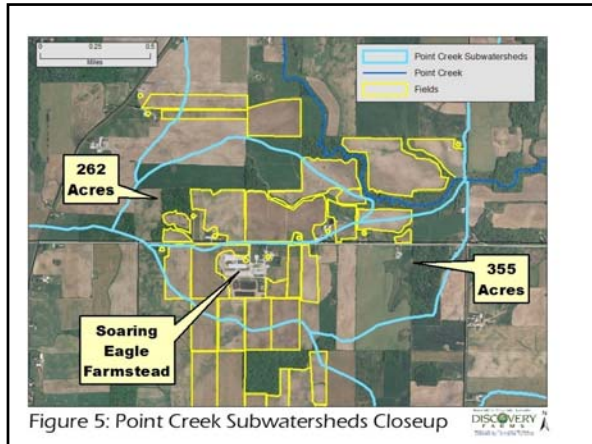


Figure 5: Point Creek Subwatersheds Closeup

Farm and site selection

- The site was selected to evaluate runoff in a slightly larger watershed and determine if our understanding of losses from a field site could be extrapolated to a larger scale.

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Equipment installation

- The installation of surface water monitoring equipment began in late July 2004.
- The site was difficult to install because of the high amounts of soil moisture contained in and around the intermittent stream.

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Equipment installation

- The waterway had inadequate getaway conditions due to the small slope (almost flat) downstream from the flume.
 - Getaway condition refers to anything that prohibits water movement through and away from the flume or may increase the potential for water to pool in or near the flume.

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Equipment installation


- We found inadequate getaway conditions to be a common landscape condition in Manitowoc County.
- An ideal monitoring site has adequate slope away from the equipment, allowing rapid water removal.

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Equipment installation



- The installation was completed in late October 2004.
- First runoff event occurred in early December 2004.
- Equipment installation and sampling is outlined in SED – 3.

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Surface water monitoring

- Data collection at SED began in December of 2004 and was conducted until October 26, 2006.



Information Available

- There are six factsheets available on SED.
- There are six briefs available on SED (2 page summaries of the factsheets).
- There are six presentations available on SED.



For Additional Information

<http://www.uwdiscoveryfarms.org>

**UW Discovery Farms
40195 Winsand Drive
PO Box 429
Pigeon Falls, WI 54760
1-715-983-5668**

jgoplin@wisc.edu or drframe@wisc.edu

