

# Marshfield, WI Lab and Farm

The Environmentally Integrated Dairy Management Research Unit (EIDMRU) is charged with developing the science to support economically and ecologically sound nutrient management decisions, including a strong emphasis on water quality. This research unit also conducts research on heifer nutrition and management, forages harvested as hay or silage, and on the use of cereal-grain forages in dairy production systems.



research farm 10 miles north of the research laboratory, near Stratford, WI

While much of the research at the Madison location is geared toward finding ways to improve nutrient use efficiency (so cows use more nutrients to make milk, not manure), research at the EIDMRU is finding ways to make more efficient use of the nutrients in manure – to reduce fertilizer costs for the farmer and to reduce the amount of nutrients, such as nitrogen and phosphorus, that escape to the environment, where they may have a negative impact.

## UW Connection

The EIDMRU operates jointly with the Marshfield Agricultural Research Station of the University of Wisconsin College of Agricultural and Life Sciences. The UW-CALS Agricultural Research Station has been at Marshfield (south site) since 1912. In the late 1990s, with the City of Marshfield encroaching upon the research station, a land swap enabled the UW to acquire new land for its dairy facilities about 10 miles north of Marshfield near Stratford. New heifer facilities were completed at this site in 2003.



main laboratory near Marshfield

The USDA Agricultural Research Service presence at Marshfield began in 2006 when Congress appropriated funds to build research laboratories and offices at the south location (completed in 2008) and dairy and field research facilities for lactating cows and replacement dairy heifers at the Stratford location (completed in 2011). The U.S. Dairy Forage Research Center manages the USDA research at these two locations.

## Three Unique Research Capabilities



68 pens of 8 heifers each

The Marshfield/Stratford facilities have three unique facilities/areas of expertise.

**Heifer facilities:** The heifer barns are designed for group research, with 68 pens (40 bedded pack, 28 free-stall housing) that hold eight heifers each. The size and scope of this facility for replacement heifer research is unique in the U.S. The facility also includes a 128-cow dairy with the capability of segregating large lots of manure for field studies.

**Experimental watersheds:** On 16 acres of the property, four experimental watersheds have been created. Each watershed is designed to drain in one direction with a collection flume at the lowest point of each plot. Water flow rate and volume are measured, and water samples are collected at regular intervals. These samples are used to determine the extent of nutrient and sediment runoff and to check for the presence of pathogens in the runoff.



4 watersheds for research totaling 16 acres



runoff collection site

**Water pathogens laboratory:** The water quality laboratory at Marshfield is nationally known for its ability to efficiently detect and measure the presence of pathogens in groundwater, surface water, and water runoff. Much of this research is related to pathogens that may be found in land-applied manure from dairy farms and to minimizing the risk to humans and domestic livestock.

## Manure and Soils

At this location, researchers are also studying new methods/strategies for applying manure that minimize environmental risk, improve the utilization of nutrients for crop growth, and maintain/improve soil quality for long-term productivity and environmental benefit. And they are researching alternative forage crops or cropping strategies that give producers more options for applying manure, managing their operations during drought, and meeting the specific nutrient requirements of dairy heifers or cows.



research compares manure management methods and equipment