

## CHAPTER 6: AGRICULTURAL TRENDS AND DEMOGRAPHICS

Agricultural practices in the County have changed significantly over the past 30 years. There are numerous reasons for these shifts in agricultural activities and practices including changes in economics, population growth, societal changes, operational practices, support services and state and national policies. The county's rapid population increase has played a role in the loss of farmland, most significantly in the Wausau metro areas along the Wisconsin River corridor. Although the rural areas both east and west of the Wausau area remain committed to agriculture, the trends indicate that the face of agriculture requires unique service and program support. Agriculture is very diverse among the six regions identified in this plan.

The agricultural industry's reduction in the number of dairy farms along with the increases in dairy, corn and soybean production are perhaps the most prominent of the changes in agriculture. Even with the changes in the agricultural industry, Marathon County remains one of the top counties in the state in terms of sales of several agricultural commodities.



### **The Growth and Preservation Challenge**

Agriculture is at the core of Marathon County's heritage, identity, plans, and economic and land use future. Marathon County's farmers own and manage over 490,628 total acres of land, nearly 50% of the land base. Nearly 331,948 acres of this land is cropland and pasture.

Dairy, the center piece of the county's agricultural economy in Marathon County, is impressive with over 61,000 milking cows each adding \$3,772 in total local sales. Agriculture's vitality is founded upon the sustainability of commodity prices, soil and water resources, and certainty of land use.

The commitment to farmland preservation in Marathon County is extremely high. Beginning in the late mid-1970s, Marathon County initiated land use planning and zoning efforts to slow the conversion of cropland, reduce fragmentation of cropland and forestland, and to address nonpoint runoff concerns. In the proposed plan, Marathon County is integrating economic development into the agricultural vision. Citizens and local officials embrace the diversity of agricultural production models (such a grazing and organic) used throughout the

county. Through this plan, the County attempts to integrate these efforts into a coherent strategy to support a changing industry.

### **Farms**

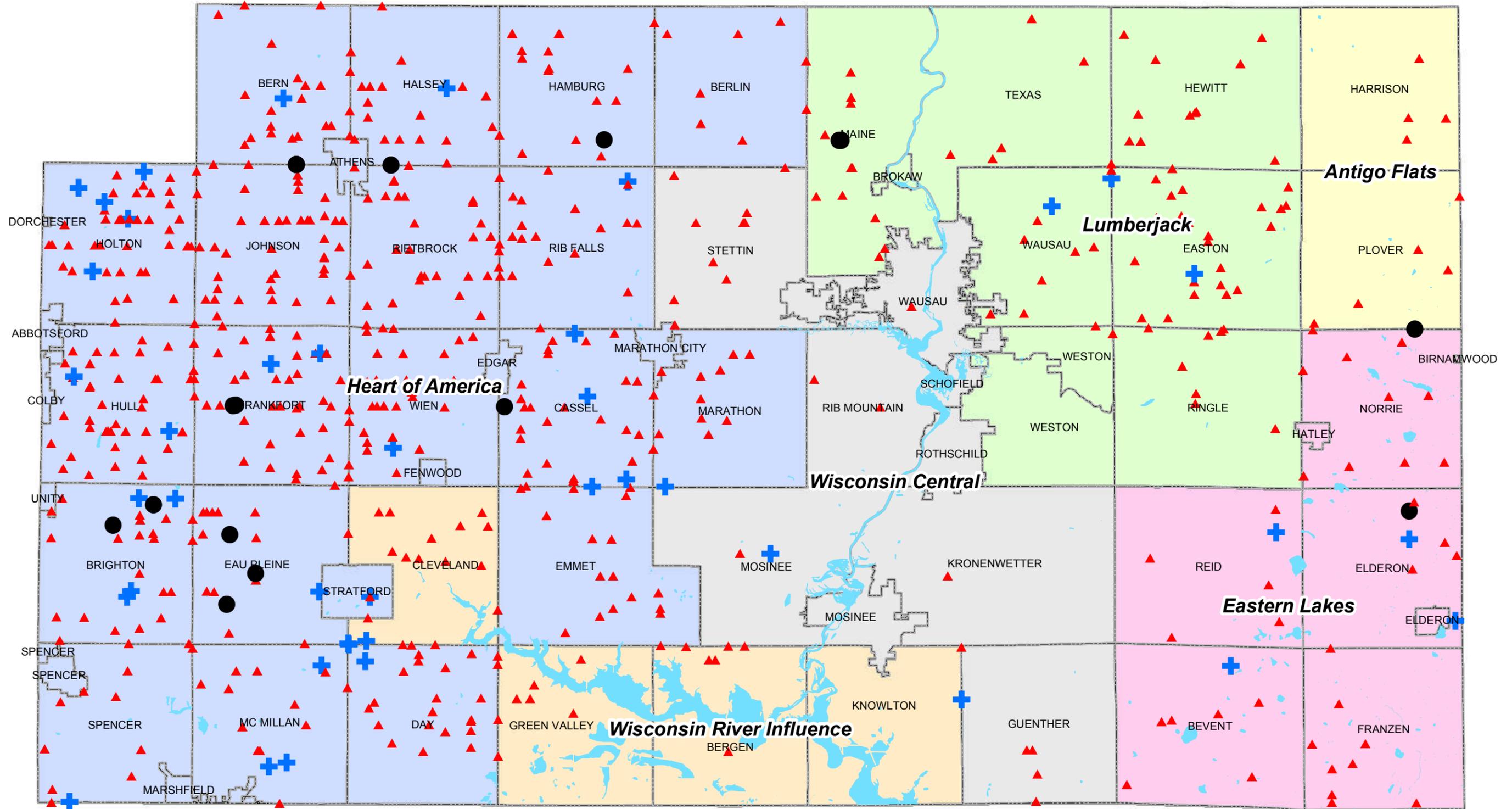
Like most areas in Wisconsin, the economic impact of agriculture, scale of livestock operations and production methods within the county are changing. Although dairy is the predominant agricultural enterprise in Marathon County, the diversity of agricultural enterprises is growing. This trend offers greater opportunities to new and emerging farm operators. Christmas trees, ginseng, maple syrup, small scale truck farms (vegetables, fruits, and horticulture) and commercial farms all make up Marathon County agriculture.

About 2,545 farms in Marathon County are operated by nearly 4,000 landowners (and of these, 1,200 are women). Over 99% of all farms remain locally owned and operated by individuals or families. The average age (52.7 years) of a producer decreased for the first time in many years. This is because of the emergence of young owners entering farm production at a small scale.

The agriculture industry contributes \$2.54 billion in revenues and nearly 13,650 jobs to Marathon County's economy. The county's farmers own and manage the resources of over 465,000 acres of land, ranking it among Wisconsin's top counties in the production of forages, nursery stock, soybeans and agricultural crops in general. Dairy remains the largest part of agriculture in the County, mostly through the sale of milk.

Map 5 shows the distribution of livestock farms in Marathon County by region.

# LARGE FARM OPERATIONS - MARATHON COUNTY WI



Map Developed by Marathon County  
Conservation, Planning and Zoning GIS



Map Print Date: 09/23/2013

Large Farm Operations		FPP Regions	
CATEGORY			
●	> 1000 Animal Units (CAFO)	Antigo Flats	Yellow
+	300 - 1000 Animal Units (MAFO)	Eastern Lakes	Pink
▲	< 300 Animal Units (SAFO)	Heart of America	Light Blue
		Lumberjack	Light Green
		Wisconsin Central	Light Grey
		Wisconsin River Influence	Light Orange
		Municipal Boundary	Thin Grey Line

In cases based strictly on live weight, 1,000 pounds of live weight is equivalent to one animal unit.

"Animal unit" means a unit of measure used to determine the total number of single animal types or combination of animal types, as specified in s. NR 243.11, that are at an animal feeding operation

Path: O:\Common\gisdata\conservation\farmland\_preservation\plan\_mxd\cafo\_mafo\_safo.mxd



**Marathon County Farm Operations**  
(WI DOR and US Census of Agriculture)

Figure 6

<b>CATEGORY</b>	<b>1987</b>	<b>1992</b>	<b>1997</b>	<b>2002</b>	<b>2007</b>
Total Farm Operations	3,078	2,804	2,703	2,898	2,545
Farming is Principle Occupation of Farm Operator	2,271	1,934	1,638	1,824	1,370
Producing < \$250,000 GFI*	1,228	1,054	1,270	1,782 (61%)	1,436 (56%)
Livestock Farms	2,331	1,904	1,725	1,573	1,418
Dairies	1,754	1,342	1,104	853	804
Land in Farms (Acres)	581,585	529,966	515,888	531,263	490,628
Farmland Value**	\$429	\$643	\$939	\$1,593 (5,135 ac)	\$2,571 (3,333 ac)
*Gross Farm Income **Agricultural Land Continuing in Agricultural Use In 2007, 630 acres converted from Ag to other uses w/value of \$3,414. Note: Land in Farms – In 2007, there are 323,614 acres of cropland w/292,078 harvested.					

**Agricultural Sales**

Of Wisconsin's 72 counties, Marathon County ranked:

- 1<sup>st</sup> for value of milk and dairy products
- 2<sup>nd</sup> for value of crops and hay
- 3<sup>rd</sup> in total value of agricultural products sold

**Communication of the Farm**

High speed interconnectivity is increasingly important in today's business environment. Approximately 1,353 farm operations have internet access. Of these, 570 have high speed internet.

**Dairy Farms**

Over the past 30 years, the county has seen the number of dairies decline from 1700 to 660 dairies with over 61,000 cows producing 1.2 billion pounds of milk annually. In the early 1980's, the face of dairy farms was quite homogenous with the average size between 25-60 cows. Today, the Marathon County herd composition is widely variable (Figure 7). Production models that feature direct marketing, organic, managed grazing, and large scale herds have an established and growing market in Marathon County.

## Wisconsin Dairy Herd Structure – 2007

Source: WASS (2008). Bob Cropp

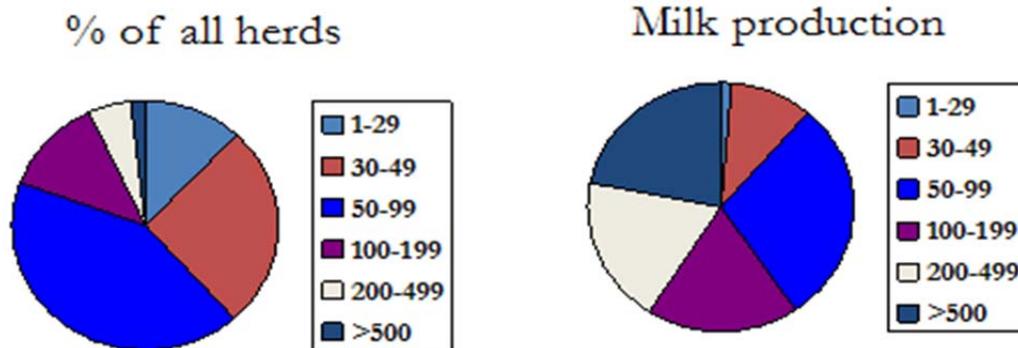


Figure 7 – Wisconsin Dairy Herd Structure – 2007

### Cow and Milk Processing

Agricultural support businesses such as implement dealers, feed and seed operations, and agricultural product processors, provide necessary services such as materials, and access to markets. The maintenance and expansion of these businesses are critical to the economics of farmland preservation in Marathon County. The dairy industry is dependent upon the export of fluid milk and processed products to regional, domestic, and international markets. Although direct local marketing opportunities are being pursued by several producer and processor groups, only 3000 cows are required to meet the dairy consumption needs of the county. Therefore, since Marathon County dairy is an exporting industry, outside markets are critical to our success and prosperity. (Map 6)

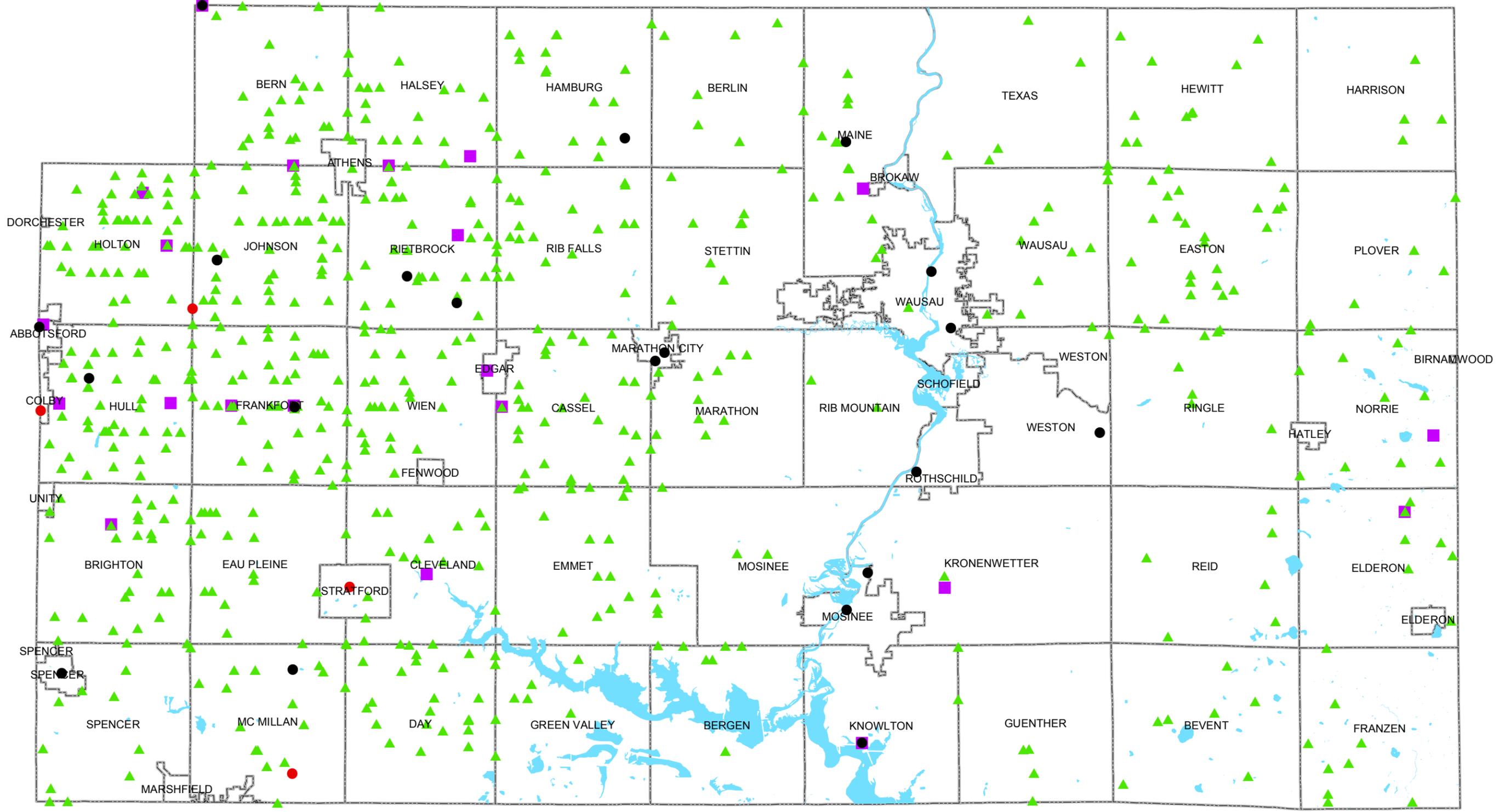
Marathon County has eighteen plants that process dairy products for local, domestic, and international markets. On-farm employment accounts for nearly 3,155 jobs and 6,190 processing jobs. Over the past decade the presence of immigrant workers has increased, serving as a reliable source of labor.

### Commodities

Marathon County's top commodities by dollar value of sale:

- Milk \$222.7 million
- Cattle and calves \$34.8 million
- Grain \$22.0 million
- Vegetables \$13.7 million
- Nursery and greenhouse \$4.6 million

# DAIRY AND MEAT OPERATIONS - MARATHON COUNTY WI



Map Developed by Marathon County  
Conservation, Planning and Zoning GIS



Map Print Date: 09/23/2013

- dairy\_plants
- meat\_plants
- ▲ milk\_producers
- bulk\_milk\_tanker
- ▭ Municipal Boundary

MAP DATA SOURCE: WI DATCP 9/2/2013

Path: O:\Common\gis\data\conservation\farmland\_preservation\plan\_mxds\dairy\_meat\_facilities.mxd



### Direct Market Farms

Increasingly, Marathon County farmers sell directly to consumers through roadside stands, farmer's market, auctions, pick your own operations, and community supported agriculture (CSA). In all, 215 farm enterprises generated \$857,000 in direct-marketing sales in 2011. Through health initiatives, Marathon County is connected with local schools to promote farm-to-school programs as a way to teach students to eat healthier and connect with local agricultural producers. Several local farmers markets operate seasonally to supply local food produce to consumer. Primary urban center markets include Weston, Mosinee, Marshfield, Kronenwetter, and Wausau along with several smaller distribution sites in rural community centers.

### Organic Farms

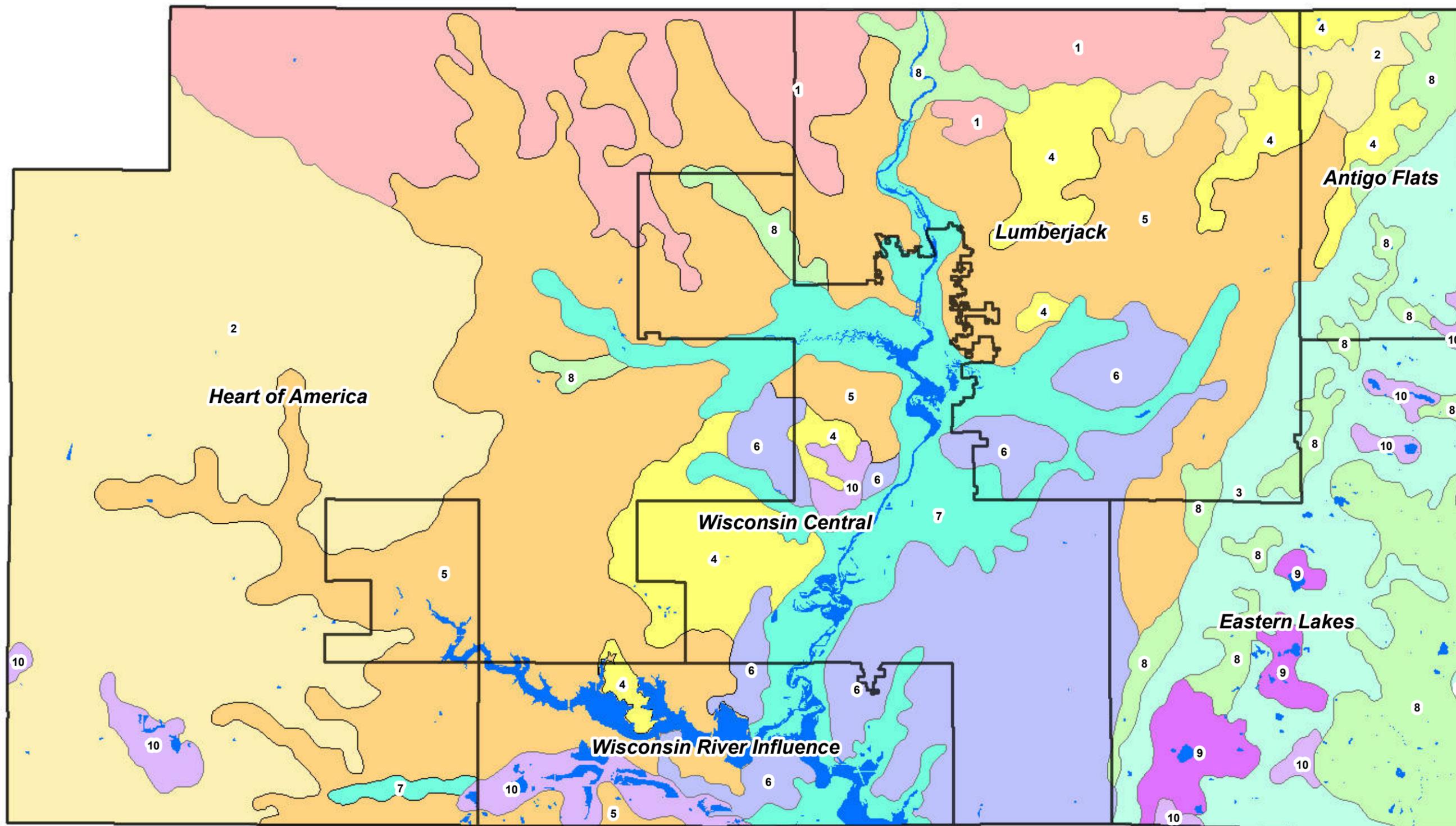
Wisconsin consumers spend approximately \$43 million on local and directly marketed foods. There is an opportunity for local producers to meet the demand of this market. Effort is underway to increase locally produced food consumption from 2% to 10%. New and established Marathon County farmers are producing products that meet this need, including dairy products, meat, vegetables, and fruit.

### **Soil Resources**

The soils of Marathon County are primarily derived from the weathering of glacial drift, outwash and bedrock. A few soils have formed in glaciolacustrine deposits, alluvial deposits, or organic material. Most soils in the county are suitable for agriculture, with the exception of the very steep areas and the poorly drained soils. See Map 7 for soil association by region.



# SOIL ASSOCIATIONS - MARATHON COUNTY WI



Map Date: 09/23/2013

Map Developed by Marathon County Conservation, Planning and Zoning GIS

Path: O:\Common\gisdata\conservation\farmland\_preservation\plan\_mxd\soil\_associations.mxd

FPF Regions
1 - Magnor-Cable
2 - Loyal-Withee-Marshfield
3 - Kennan-Hatley
4 - Marathon-Myre-Moberg
5 - Fenwood-Rietbrock-Rozellville
6 - Mahtomedi-Fordum-Sturgeon
7 - Mahtomedi-Fordum-Sturgeon
8 - Chetek-Rosholt-Oesterle
9 - Mahtomedi-Graycalm-Meehan
10 - Cathro-Seelyville

**AREAS DOMINATED BY SOILS UNDERLAIN BY LOAMY GLACIAL TILL**  
 1. Magnor-Cable association: Deep, nearly level and gently sloping somewhat poorly drained to very poorly drained, stony and silty soils on ground moraines.  
 2. Withee-Marshfield association: Deep, nearly level and gently sloping, somewhat poorly drained and poorly drained, silty soils on ground moraines.

**AREAS DOMINATED BY SOILS UNDERLAIN BY SANDY OR LOAMY GLACIAL TILL, RESIDUUM, OR BEDROCK**  
 3. Kennan-Hatley association: Deep, nearly level to steep, well drained and somewhat poorly drained, bouldery, cobbly, silty, and loamy soils on moraines and drumlins.  
 4. Marathon-Myre-Moberg association: Deep, nearly level to moderately steep, well drained, somewhat poorly drained, and somewhat excessively drained, stony, gravelly, and silty soils on uplands and ground moraines.  
 5. Fenwood-Rietbrock-Rozellville association: Deep, nearly level to steep, well drained and somewhat poorly drained, stony and silty soils on ground moraines and bedrock-controlled uplands.  
 6. Meadland-Mosinee-Dancy association: Deep, nearly level to moderately steep, somewhat poorly drained, well drained, and poorly drained, stony and loamy soils on ground moraines and bedrock-controlled uplands.

**AREAS DOMINATED BY SOILS UNDERLAIN BY SILTY, LOAMY, OR SANDY, ALLUVIAL, LACUSTRINE, OR OUTWASH DEPOSITS**  
 7. Mahtomedi-Fordum-Sturgeon association: Deep, nearly level to very steep, excessively drained, moderately well drained, poorly drained, very poorly drained, and somewhat poorly drained, sandy and silty soils on stream terraces, outwash plains, and flood plains.  
 8. Chetek-Rosholt-Oesterle association: Deep, nearly level to steep, somewhat excessively drained, well drained, and somewhat poorly drained, loamy and silty soils on outwash plains and stream terraces.  
 9. Mahtomedi-Graycalm-Meehan association: Deep, nearly level to very steep, excessively drained, somewhat excessively drained, moderately well drained, and somewhat poorly drained, sandy soils on outwash plains, stream terraces, and glacial lake plains.

**AREAS DOMINATED BY ORGANIC SOILS THAT ARE MUCKY THROUGHOUT OR ARE MUCKY IN THE UPPER PART AND ARE UNDERLAIN BY SILTY OR LOAMY DEPOSITS**  
 10. Cathro-Seelyville association: Deep, nearly level, very poorly drained, mucky soils in depressions on ground moraines, outwash plains, and glacial lake plains.

\*Unless otherwise indicated, texture terms in the descriptive headings refer to the surface layer of the major soils in the associations.

Compiled 1989, US Dept. of Agriculture Soil Conservation Service.



## Soil Erosion

Soil erosion has many potential sources. With over 331,948 acres of cropland within the county, agricultural soil erosion has been a longtime concern for the Marathon County Conservation, Planning and Zoning Department. Soil erosion delivers soil sediment, organic material and nutrients to surface waters and is considered the primary nonpoint source of pollutant to our waterways.

### Soil Erosion Transect Survey

In June 1999, Marathon County conducted its first transect survey. The average annual “tolerable” soil loss rate (“T”) per acre for Marathon County is 4.4 tons per acre per year. It is important to understand that soil loss calculations and acceptable “T” are performance values based on maintaining soil productivity not protecting water quality.

Figure 8: Annual Soil Erosion Rates

<b>Year</b>	<b>Average Soil Erosion Rate (tons/acre)</b>	<b>Percent (%) of Cropland &lt; Tolerable Soil Erosion Rate</b>
2000	2.0	82
2002	2.3	80
2004	2.3	82
2006	2.1	84
2008	1.7	87
2010	1.8	87

Source: Marathon County Soil Erosion Transect Survey

The soil transect survey reveals that nearly 50% of the cropland is tilled in some manner that disturbs the soil exposing fields to erosion in the spring and fall. Furthermore, the survey indicates that only 10% of the cropland utilizes conservation tillage to reduce erosion. No-till as a best management cropping practice remains an under-utilized management option. The number of acres planted with to hay is declining (5% reduction in 5 years) while the number of acres planted to soybeans and other row crops has increased. Fields planted to soybeans are finely tilled, leave little plant residue on the surface when harvested and have a rooting system which loosens the soil; therefore, making it susceptible to erosion. Similarly, the total acres dedicated to corn silage continue to increase.

## Water Resources

### Surface Water

Marathon County has 202 lakes with a total surface area of 28,322 acres. The lakes tend to be small and vary in depths ranging from one foot to thirty-four feet. The Big Eau Pleine Reservoir is the largest body of water with a potential area of 6,830 acres when full.

The county has 356 rivers and streams with a surface area of 3,748 acres. The Wisconsin River flows south through the county. The river is regulated by several dams on the mainstream and tributaries, which are controlled by the Wisconsin Valley Improvement Corporation (WVIC). Major tributaries flowing from the east to west include the Trappe, Eau Claire, Little Eau Claire

and Plover Rivers. The major tributaries flowing from west to east are the Little Rib, Big Rib, Big Eau Pleine, and the Little Eau Pleine Rivers. The county contains all or part of 22 watersheds. All but two are part of the Central Wisconsin River Basin. The southeast corner of the county drains to the Fox-Wolf Basin.

Most wetland areas of the county are wooded. The Mead (33,000 acres) and the McMillan (5,700 acres) Wildlife Areas are the most extensive wetland and grassland regions located in the county. The flowages in these areas were developed to create waterfowl nesting sites and feeding areas for migratory waterfowl.

From the late 1940's through the 1970's, many natural wetland areas on the west side of the county were drained for cropland through constructed "w"-shaped surface ditches. These long, narrow drainage channels improved crop production, but also increased runoff rates and the flashy nature of the streams. The majority of these drainage ditches still function in agriculture areas.

#### Outstanding and Exceptional Resource Waters

An Outstanding Resource Water (ORW) is a lake, stream or flowage having excellent water quality, high recreational and aesthetic value and high quality fishing. ORW waters are free from point source or nonpoint source pollution. An Exceptional Resource Water (ERW) is a lake, stream, or flowage exhibiting the same high quality resource values as outstanding waters, but may be affected by point source pollution. Several streams in the county are classified as ORW or ERW. A complete listing of these high quality surface waters can be found on the WI DNR web site found in the reference section.

#### Water Quality Management Areas (WQMAs)

A Water Quality Management Area (WQMA) is defined as a) an area located within 1000 feet from the ordinary high-water mark of navigable waters; b) an area located within 300 feet from the ordinary high-water mark of navigable waters; or c) a site that is susceptible to groundwater contamination or that has the potential to be a direct conduit for contamination to reach groundwater. Marathon County has delineated the WQMA's areas greater than five acres in size. Because of the highly developed drainage systems of the County, the WQMA's are extensive and widespread.

#### Groundwater

Groundwater is the major source of all water consumption in Marathon County. Marathon County has 17 municipal water systems owned and operated by a specific community. All public and private water supplies and most domestic, industrial, and agricultural supplies rely on groundwater. According to the Department of Natural Resources Inventory of Watersheds (Central Wisconsin River Basin Report, 2006), fifteen (15) of the twenty (20) inventoried watersheds rank "high" relative to groundwater impacts and threat to the resource. As residential development continues to expand into the rural areas of the county and agricultural production methods intensify, the concern for groundwater protection grows.

The concern for groundwater quantity has increased, as reflected in the citizen survey. From 1979 to 2010, total water use in Marathon County increased from 40.7 million gallons per day to 55.5 million gallons per day. Recently, the communities of Dorchester and Abbotsford have documented concerns about limited municipal water supplies and its impact to future growth. The concern has also extended to other small rural communities, as well as towns where large scale livestock operations draw heavily on the regional water supplies.

Nearly 85% of 762 private well samples collected in Marathon County from 1990-2006 met the health-based drinking water limit for nitrate-nitrogen. 396 of these samples (52%) that contained 2-10 mg/L of nitrates serve as indicators that land use is affecting groundwater quality. The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) and DNR report that 80% of nitrate inputs to wells originate from the agricultural land spreading of nutrients and legume cropping systems.

Nearly 5,540 acres of land in south central Marathon County are located in atrazine prohibition areas.

