

BIOMASS: FUTURE SWEET SPOT FOR UPPER MIDWEST

Southern Minnesota has some of the highest levels of solid biomass resources per square kilometer in both the United States and the world.

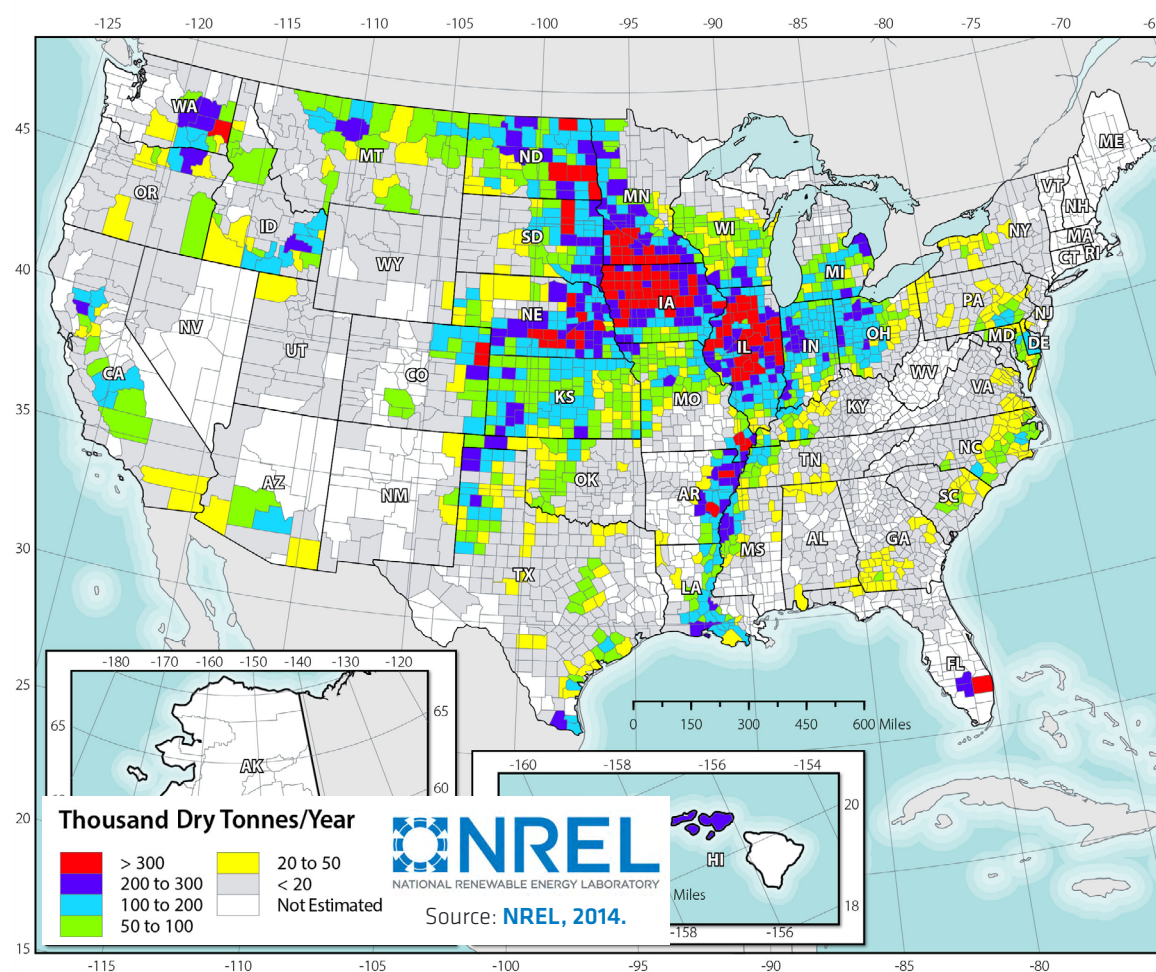
Minnesota and the upper Midwest play an out-sized role in feeding a hungry world. The region has key food-related industries such as bio-processing and biotechnology. Biomass offers a potent resource for emerging plant-based products such as biofuels, bioplastics, and plant-based proteins.

Key Insights

- The current conflicts in eastern Europe have highlighted the **critical dependency the world has on food exports**, and grains as food staple for many people.
- The growing global population will mean a **dramatic increase in the global need for food** (60% growth), energy (50%) and water (40%) by 2050. Feeding the world in an increasing macro challenge.
- **Climate change will amplify these challenges**, with significant parts of the world facing declining ability to produce biomass and food. Overall, there is a growing global disconnect between where food can be grown and where it will need to be consumed.

The story for the upper Midwest is intriguing. This region is already a globally significant food producing region, and its importance will only increase.

Crop Residue in the United States





BIOMASS: IMPLICATIONS FOR THE GREATER MANKATO REGION

The ability to produce food and biomass is a key economic driver for the upper Midwest, and the Greater Mankato region.

This biomass production capability is the foundation of new possibilities in the bioeconomy (which means industries that are based on the biomass source material). This can range from foods, fuel, plastic replacements, and oils. The region is uniquely positioned to be a key player in the coming food and bioeconomy revolution, with its combination of food production capability, abundant fresh water, and access to renewable energy.



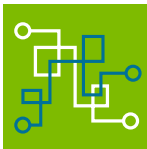
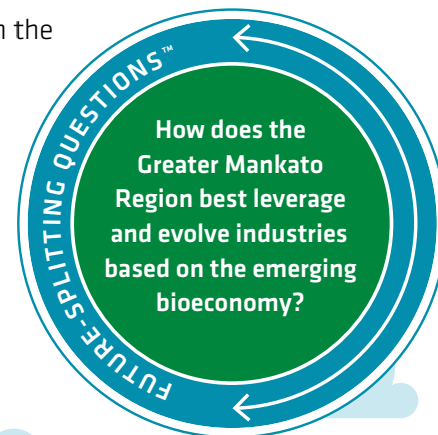
Minnesota farm and food companies account for
367,000 JOBS



Minnesota food companies generated approximately
\$183.8 BILLION
in sales 2008-2009



Minnesota is the
4TH LARGEST
ag export state in the U.S.



FutureInsight

- The upper Midwest will likely emerge as one of the **most important food producing regions** in the world, and the Greater Mankato Region is uniquely positioned. How do we leverage this opportunity?
- The Greater Mankato region could become a **global epicenter of investment** in the bioeconomy. How do we want to see the bioeconomy evolve in this region?



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