



## Sustainable Biomass Removal Rates

### What is this technology?

Developing harvest rates and management guidelines for emerging biomass systems, row-crop and grass-based systems

### Research description

Complementary approaches (plot and on-farm scale) are being used to identify sustainable biomass for bioenergy systems.

- Harvest rates for corn-soybean rotations,
- Use of cover crops, or living mulch
- inclusion of perennial crops in rotations,
- Alternative bioenergy production systems such as grass-based systems.

### Problems

Excess harvest of non-grain biomass can:

- accelerate erosion
- reduce soil organic matter
- negatively impacting soil quality, soil productivity and causing environmental degradation

Management guidelines and harvest rate recommendations are needed to balance potential negative impacts of biomass harvest, while maximizing biomass and economic return.

### Enhances and contributes to other projects

- Contributes to ARS-cross location project “Renewable energy Assessment Project” REAP
- Soil and crop management systems to sustain agricultural production and environmental quality in the northern Great Plains
- Soil Carbon Cycling, Trace Gas Emission, Tillage and Crop Residue Management
- Multi-scale evaluations of land use management systems in the upper Midwest

### Potential benefits of partnering with ARS on this research

ARS has the scientific network of soil scientist, agricultural economists, plant physiologists and modelers that are able to integrate information for independent location to provide local and national guidelines, strategies and decision support tools.

### Moving Forward

Empirical data, modeling efforts, on-farm trials and integration of economic and environmental risks and benefits need to be assessed; whereby, local, regional and national biomass management and harvest rates can be based on solid science and transferred through a variety of media (e.g. technical bulletins, decision aids, publication).

### Contact Information

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