

Assessment of Equipment Performance and Energy Requirements for the Development of Tillage Management Strategies

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Abstract

Recently, increased fuel prices have made producers become more conscious of fuel usage leading to interests in possible fuel conservation strategies. Methods including equipment parameter monitoring and site-specific tillage can provide such cost saving techniques. Spatially monitoring and collecting tractor performance data during field operations can play an essential role in effective equipment management and increased operating efficiencies. The objective of this study is to evaluate tractor performance parameters during tillage to optimize in field-performance and quantify energy savings associated with site-specific tillage practices. A data acquisition system was developed to real-time monitor and archive fuel consumption, wheel slip, and draft load all tagged with GPS position information. Experiments are planned to collect these data under different conservation tillage practices. Results will be used to assess tractor performance and energy requirements for the development of site-specific management strategies while quantifying fuel savings.