

## **RESEARCH IN PROGRESS**

### **Utilizing GIS to Examine Roadway Features That May Increase the Risk of Farm Vehicle Traffic Crashes in the State of Iowa**

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#### **Purpose/Objective:**

In 2007, Iowa had 243,403 registered tractors servicing 92,856 farm operations. A substantive proportion of tractors travel on roads transport goods from farm homesteads to agricultural distributors. In this same year, 188 farm equipment-related crashes occurred with 60% resulting in an injury. The objective of this analysis is to identify environmental risk factors (e.g., road characteristics) that lead to self-propelled farm equipment-related crashes occurring on Iowa's public roadways.

#### **Methods/Efforts:**

Using Iowa Department of Transportation farm equipment-related crash data from 2005-2011 (N=1,371), a case control analysis derived through Geographical Information Systems (GIS) analysis was conducted to compare road characteristics where a farm crash occurred to road characteristics where a farm crash has not occurred with the potential to identify road features that increase crash risk.

#### **Results/Findings:**

Of a total 319,705 road segments in Iowa, 0.4% (n=1,337) segments had a farm equipment crash. The odds of farm equipment crash were significantly higher in road segments with increasing traffic density and speed limit, while type of roadway and roadway width greatly impacted crash risk as well.

#### **Application to Field Research:**

Findings can then be used to identify roads at risk for a farm equipment crash. This information will aid policy-makers in developing safer roads for all roadway users.

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