# *Crop Hail Damage Assessment*

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**IGF Insurance Company:** A crop insurer in the US, with over $250 million in premium. Headquartered in Des Moines, Iowa, IGF specializes in writing innovative crop insurance plans including Crop-Hail, the federal Multiple Peril Crop Insurance, and other crop-related Named Perils.

**Project Goal:** To demonstrate the use of remote sensing technology combined with related ancillary data collection within a farm-level geographic information system to provide the IGF Insurance Company loss adjuster with a fair and accurate tool for assisting with corn and soybean crop hail damage insurance settlements in minimal time and without conflict, while keeping expenses low.

**Results:** The project effectively demonstrated that commercially available imagery and image processing software tools could be used to detect and locate the relative level of hail damage in cropped areas. Landsat TM imagery could be a very useful tool for preplanning hail-damage assessment operations in a severe storm situation.

**Conclusions:**
- hail damage in corn and soybeans can be detected and mapped with remotely sensed imagery.
- remotely sensed imagery with a spatial resolution of ~5 m would be adequate for detection and mapping of hail damage in soybeans and corn.
- remotely sensed imagery at a scale of 30 m would be adequate for preliminary post-storm damage assessment and planning.

**Reference:** Peters, A.J., S.C. Griffin, A. Vina and L. Ji. Use of Remotely Sensed Data for Assessing Crop Hail Damage, Photogrammetric Engineering & Remote Sensing Vol. 66, No. 11 November 2000, pp. 1349-1355.
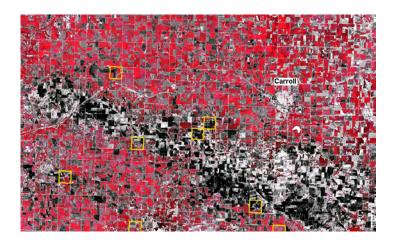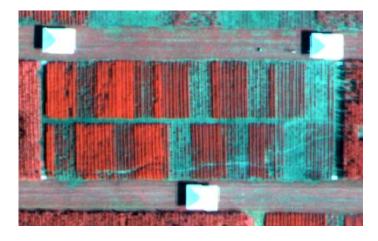


**Figure 1**. A hail streak is shown after an image classification procedure on a Landsat Thematic Mapper image. This shows the ability to differentiate "levels" of hail damage. The yellow boxes indicate areas where IGF Insurance Company paid crop-damage claims after the storm.



**Figure 2.** Aerial multispectral false color composite image of soybean plots subjected to an artificial hailstorm. The resolution of the imagery is 1 meter.