

Assessing Crop Damage Due to Fertilizer Drift

Background:

Glyphosate (trade name Roundup) is a non-selective herbicide and effectively kills a wide variety of unwanted plants through leaf absorption, including grasses, sedges, and woody shrubs. Many crops have now been genetically modified to be resistant to Glyphosate (Roundup-Ready), enabling dramatic improvements in weed control and thus yield. However, when applying Glyphosate, care must be taken to avoid spray drift onto conventional crops. If farmers that plant "conventional" crops suspect neighboring farmers' Glyphosate has drifted onto their crops, they can look at satellite imagery to evaluate and quantify damage.

Use of Data:

A crop consultant from Northwest Minnesota was notified by a couple of his clients that their conventional corn crops had been damaged due to their neighbors' use of Glyphosate. The consultant looked at Landsat Imagery to determine that his clients' complaints were in fact true.

In the first case (Figure 1), a farmer's conventional corn field (outlined in yellow) was drifted upon by a soybean field that was across the road to the southwest. The blue colors represent the area with the greatest damage to the corn and the dark purple was somewhat damaged.

In the second case (Figure 2), another farmer's conventional corn was drifted upon by Glyphosate. This time it came from a Roundup-Ready corn field in the southern portion of the image.

Economic and Environmental Benefits:

Because Landsat Imagery was available, the crop consultant from Northwest Minnesota was able to assist his clients with their claims. The farmers were compensated for the damage that occurred to their crops due to their neighbors' use of Glyphosate when the wind could carry it on to "non-target" crops.

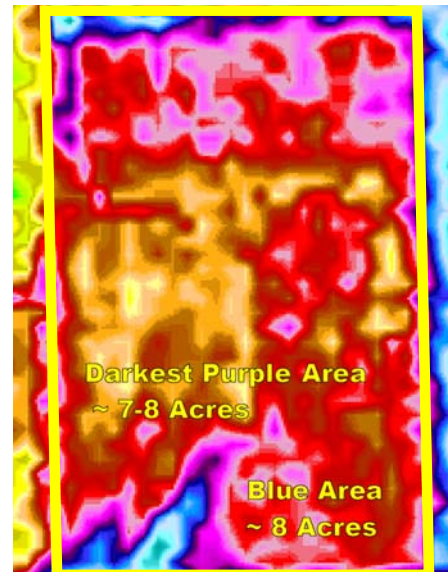


Figure 1: Crop damage is displayed in blue and purple, primarily in the southwest portion of the field.

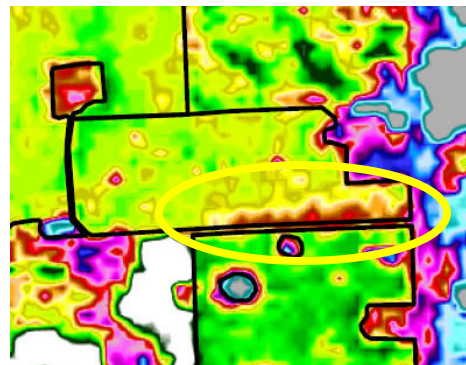


Figure 2: Crop damage is displayed as the redish area on the southeast side of the "middle" field. Note how that damage coincides with the corn field to the south that was across the road.