

Verifying Effectiveness of Fungicide Application

Background:

Precision farmers are always confronted with the question of whether to apply fungicide, how much to apply and when to apply. Carson farms, North Dakota tried answering these questions by conducting test applications of fungicide and looking at the high-resolution IKONOS image, during the 2000 crop season.

Use of Imagery:

Fungicide was applied on an 80-acre wheat field, except along the test strips. The test strips were 180 feet and 120 wide. IKONOS imagery taken on August 21, 2000 showed the test strips clearly. The imagery also showed that the crop was healthier where the fungicide was applied. Figure 1 shows the multispectral 4-meter resolution IKONOS image of the fields.

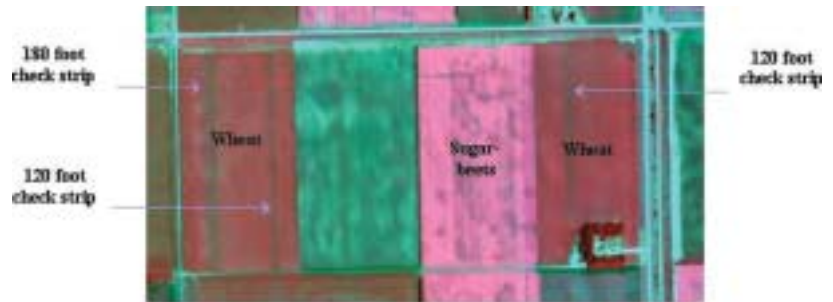


Fig1. IKONOS image showing the fungicide test strips in the wheat fields on Carson Farms, North Dakota. © Space Imaging

Economic Benefits:

The yield data obtained at harvest from the yield monitor was overlaid on imagery. Figure 2 shows the yield data variations within and outside the test strip. The fine resolution of the imagery allowed easy identification of the 120 feet wide test strip, but the yield variations, measured based on yield monitor results, were more noticeable in the 180 feet wide strip.

The overlay of yield data over the imagery showed that the average yield within the test strip was only 61 bushels per acre as compared to 72 bushels per acre outside the test strip, thereby emphasizing the need for fungicide applications. On an average, application of fungicides resulted in increased income of \$33.00 per acre, or \$2640.00 for the whole field.

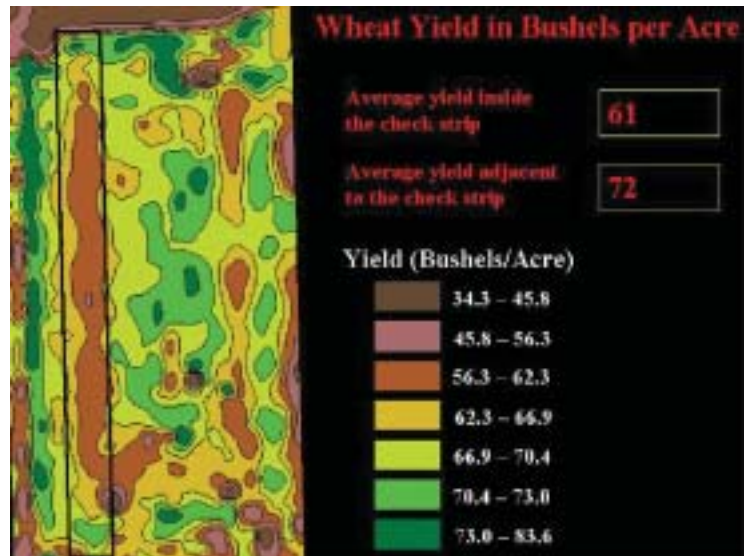


Fig2. Wheat yield measured at harvest showing lower yield within the fungicide test strip.

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