

Monitoring Wheat With Weekly NDVI Saves Money

Background:

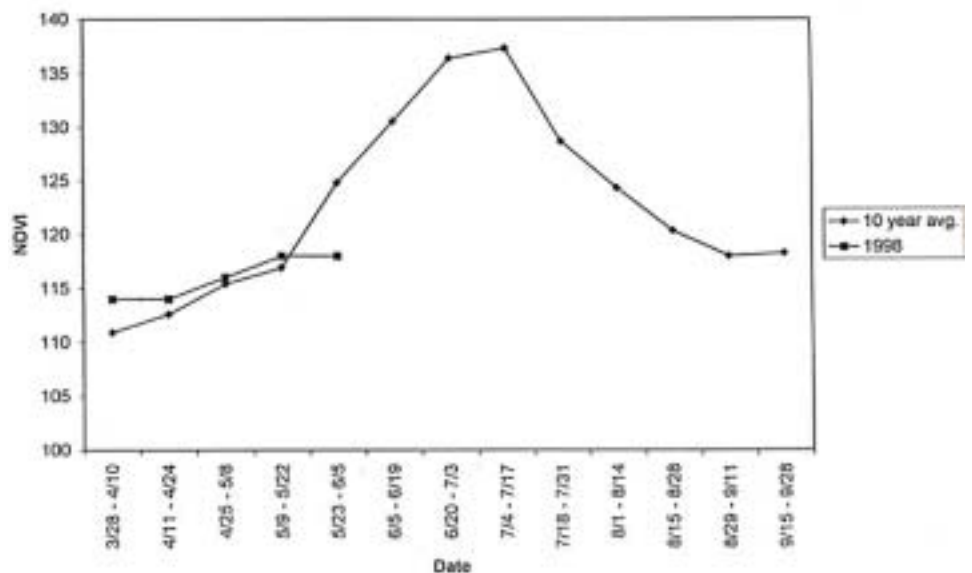
Wheat quality is determined by its protein content and is related to inputs, plant biomass, and weather. A warm, wet year will induce plant growth that depletes the soil of nitrogen needed later in the growing season. The result is a high yielding, low quality (low protein) crop. By applying nitrogen at the appropriate time mid- to late-season, the deficit could be corrected. Using satellite imagery to monitor crop growth during the growing season allows comparisons of the current year's growth with that of previous years. Comparisons of growth rates will show whether the current crop is likely to become nitrogen deficient. These comparisons can, therefore, help determine whether additional nitrogen fertilizer should be applied. Applying nitrogen fertilizer only when necessary will decrease spending on inputs.

Data Used and Analysis:

In this early study done in Montana in the summer of 1998, weekly NDVI values derived from AVHRR were plotted with the historical averages to chart how the season progressed with respect to historical 10-year averages.

Economic and Environmental Benefits:

Based on the NDVI and departure from average, which clearly showed a vast departure from average, the farmers decided to plough their crop under and save the moisture for the next crop. Creating NDVI images for producers demonstrated the utility of NDVI technology for demonstrating seasonal differences from the ten-year average. Later, in a published article, the farmers wrote "...seeing these NDVI images showed us the broad picture and gave us a great deal of optimism when it comes to satellite images. Perhaps with the more detailed images possible with the new satellites going up, there may be a vast amount of knowledge that we can apply to our management decisions."



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