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Nitrogen management practices have a major impact on the profitability of sugar beet production. Various techniques have been developed for monitoring the nitrogen status of a sugar beet crop at selected times during the season. Remote sensing is a technique that has potential for monitoring the nitrogen status of sugar beets during the season. Recently a procedure was developed that utilizes an adequately fertilized reference strip and remote sensing technology for improving nitrogen management practices in corn. Remote sensing could be especially useful when variable rate technology is used for applying fertilizers. Our objective in this study was to evaluate the potential of using remote sensing to characterize the nitrogen status of sugar beets. Canopy reflectance was measured with a spectroradiometer at various times during 1993 and 1994 on nitrogen rate experiments (10 rates; 4 replications); aerial photographs were also taken from these experiments in 1994. Reflectance measurements were significantly influenced by degree of nitrogen stress. These reflectance measurements, however, were not consistent throughout the season. Greatest differences in reflectance measurements among treatments tended to occur near the 675 nm wavelength. Good relationships were observed between sugar yields and digitized aerial photographs; the best relationships were observed in the red wavelengths. Preliminary results would indicate that remote sensing can identify differences in nitrogen status in a controlled study and can be used to identify problem areas within fields, but its use as a direct tool for managing nitrogen in sugar beets is uncertain.