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A CROP AREA ESTIMATION STUDY ON THE SOUTH AFRICAN HIGHVELD

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ABSTRACT

The Highveld of South Africa contains more than 50 0/0 of the country's cultivated land and produces more than 70 0/0 of the major grain crops. A fast and efficient method of utilizing Landsat data for production of crop maps for this region would constitute a major input for agricultural planning purposes.

Nine test sites of different soil and cover types and each consisting of about 100 fields of 5000 hectares total area were selected in the Landsat frame WRS 182-79 which lies centrally within this region. Major cover types are pasture, maize, sorghum, sunflower, wheat, with lesser areas of open water, beans, potatoes and forage crops. Detailed ground reference data were collected at planting time and subsequently, coincident with satellite overpasses. Lack of cloud-free satellite data for the 1979-80 season restricted the study to single date classification. Unsupervised and supervised classifications were performed with an accuracy of 70 - 80 0/0 agreement with 5 0/0 error of commission for the major crops. More complete satellite coverage for the 1981-82 season is currently being analysed.