

REMOTE SENSING FOR CROP AREA ESTIMATION IN THE INFERIOR VALLEY OF COLORADO RIVER BUENOS AIRES PROVINCE

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ABSTRACT:

Satellite data have been widely used to map land cover and for acreage estimation in different regions of the globe. However many valleys and regional irrigated places remain still without the application of image processing methodologies to improve their acreage estimation.

The area in study is located in the south part of Buenos Aires province. It comprises a great part of Villarino and Patagones counties, between 39° 10', 39° 33' of south latitude and 62° 05', 63° 55' of longitude west.

The different crop types are related horticulture, cereals, oilseed and forage for grazing and seed production.

The alluvial soil of this valley, the farming and irrigation systems create a very heterogeneous pattern. Crop inventory presents a lot of difficulties because of the extremely complex mix of land uses, small field sizes and soil degradation because of salinity problems.

The purpose of this study is to assess the feasibility to provide operational agricultural statistics from remote sensing in irrigated valleys with particular farming systems.

Both LANDSAT TM and SPOT are examined for their capability to discriminate agricultural crop classes throughout the growing season. SPOT data are well adapted for defining field boundaries and TM data re - sampled to 20 metros are suitable to discriminating crop types. The different classes are classified using a multi-temporal classification technique different degree of success. The resulting reference maps are integrated in a GIS for a mapping of land use, in relation with other cartography of the area.

Accurate and systematic crop inventory is needed to improve the efficiency of the commercialization of the main crops, as well as to provide useful environmental data on the use of water resources.