1977 Kings County, California Real Time
LANDSAT Crop Acreage Estimation Project

by
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Objectives

The objectives of the 1977 Kings County, California "Real Time" LANDSAT Crop Acreage Estimation Project were to determine the repeatibility of the 1976 Kings County estimating procedure, the stability of the regression estimator, and to examine where the time lags occur in using LANDSAT data for crop acreage estimation. The date of the LANDSAT image was July 7, 1977.

The time frame for the various aspects of the project are outlined in Table 1. The LANDSAT image was taken on July 7, 1977 but was not available for analysis at the Bolt, Beranek and Newman Data Processing Facility in Boston until August 8, 1977. Several delays that occurred were:

1) NASA could not provide SRS with the computer compatible tapes until July 22, 1977.
2) SRS Research Division Data Processing Personnel encountered difficulty in copying the NASA tapes. Due to one of the following reasons:
   a) A defective tape from NASA;
   b) An unrequested writing on the NASA tape by the Washington Computer Center Facility;
   c) A JCL error in the copy job that requested the first strip of data at 800 bpi and the second, third, and fourth strips at 1600 bpi on the same tape.

Once the data was received in Boston, it was precision registered and analyzed in one week.

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The results of the analysis were quite encouraging and are summarized in Table 2. The sample correlation coefficients squared (r^2) were all above .8 for the major crops. The performance of the regression estimator seemed to be stable from year to year in the same analysis area. In general, the results of the analysis were quite encouraging. Data transmission and registration were the main time consuming factors in the project. If an entire state "real time" estimation project is to be considered, these processes would have to be sped up considerably.

Also in a real time state level project, the collection of ground data and editing would require a substantial resource committment and smooth data processing in order to be at BBN for real time analysis. I feel this aspect of estimation projects has always been underestimated by assigning only one or two professionals to perform this "less than exciting" portion of a project. In a real time effort it would take more professionals in a section level effort led by one individual with the responsibility to make decisions in real time that the entire group would participate in.

TABLE 1

California 1977

Date of Image	: July 7, 1977
Ground Truth on BBN	: July 11, 1977
Segments Digitized	: July 18, 1977
CCT & Paper Product from NASA Goddard	: July 22, 1977
Unsuccessful Copy Jobs	: July 25-27, 1977
Sent Bad Tape to CAC	: July 26, 1977
NASA Found Out Tape Bad	: July 29, 1977
New Tape From Goddard	: August 1, 1977
Copy Job	: August 2, 1977
Send Originals to CAC	: August 2, 1977
CAC Deskewed & Mailed Tape to BBN	: August 3-4, 1977
CAC Mailed CPS Greyscale to SRS	: August 5, 1977
SRS Started PCAL	: August 8, 1977
SRS Started Analysis	: August 10, 1977
SRS Finished Analysis	: August 13(15 Monday)**

KINGS COUNTY, CALIFORNIA - 1977

Cover Type	Direct Expansion[3]		Regression Estimate					Average Field Size (Acres)	SSO County Estimates (Acres)
	Acres	C.V.%	% Correct	R^2	Relative Efficiency	Acres	C.V.%		
Cotton	139,351	36.3	73.1	.954	20.03	243,109	7.2	57.3	1/
Barley	171,265	35.6	89.0	.967	28.05	164,916	6.7	155.6	1/
Corn	22,236	74.0	66.6	.906	9.92	82,313	11.0	34.4	1/
Alfalfa	24,527	46.8	72.3	.823	5.24	38,346	20.1	25.7	1/

KINGS COUNTY, CALIFORNIA - 1976

Cotton	209,042	29.0	80.3	.973	34.5	221,406	7.5	103.2	202,000
Barley	114,786	47.9	78.5	.967	27.7	162,952	9.8	108.6	111,000
Corn	17,409	60.0	68.6	.809	4.8	76,646	13.2	27.8	25,000
Alfalfa	27,327	52.5	21.6	.668	2.8	28,399	47.3	27.5	56,000 2/
Winter Wheat	58,815	50.1	51.4	.823	5.2	95,474	20.7	104.6	87,000
Sorghum	11,236	91.0	69.3	.672	2.8	26,849	35.5	76.5	11,000
Safflower	49,313	99.3	89.3	.996	218.8	10,793	48.3	710.0	18,000 2/

[1]Not available.

[2]From County Commissioner.

[3]D.E. on 15 segments used for Regression Estimate.