Study of ICARDA farms and surroundings using IKONOS data

Background

IKONOS data of April 24, 2001 for ICARDA farms and surroundings captures most of the major crops of the region. The image is taken when crops are in critical growth phases, making it ideal to study crop yield. The image will help establish spectral characteristics of major spring crops using hyperspatial data. Here are the objectives thought of for this study:

1. Yield vs. IKONOS data

Develop relationships between yield and IKONOS spectral values for major spring crops like wheat and barley.

Note: dependant on getting yield data from ICARDA… David Celis has agreed to send these in September 2001

2. Study spectral characteristics of major crops using IKONOS data

Study spectral separability between different spring crops using IKONOS data. Statistical analysis of these data (e.g., tests of significance, discriminant analysis). Will generate field-by-field spectral characteristics for wheat, barley, chickpea, lentil, vetch, and cumin;

Note: crop type data available from fieldwork of David Celis *et al*., and ICARDA farm maps.

3. Crop type classification using IKONOS data

major crops are classified and separated using IKONOS data (e.g., unsupervised and supervised classification). Will test the ability of IKONOS data in delineating crop types and will establish levels of accuracy.

Note: crop type data available from fieldwork of David Celis *et al*., and ICARDA farm maps.

4. Within, and between, farm spatial variability

Study of within-farm spatial variability will establish the range (or variability) of yield and biophysical characteristics for a particular crop.

Study of between-farm spatial variability will establish the differences for a single crop across farms.

Study of between-farm spatial variability will also establish the differences amongst different crops.

Note: NDVI image map of ICARDA farm, land use map of ICARDA farm.