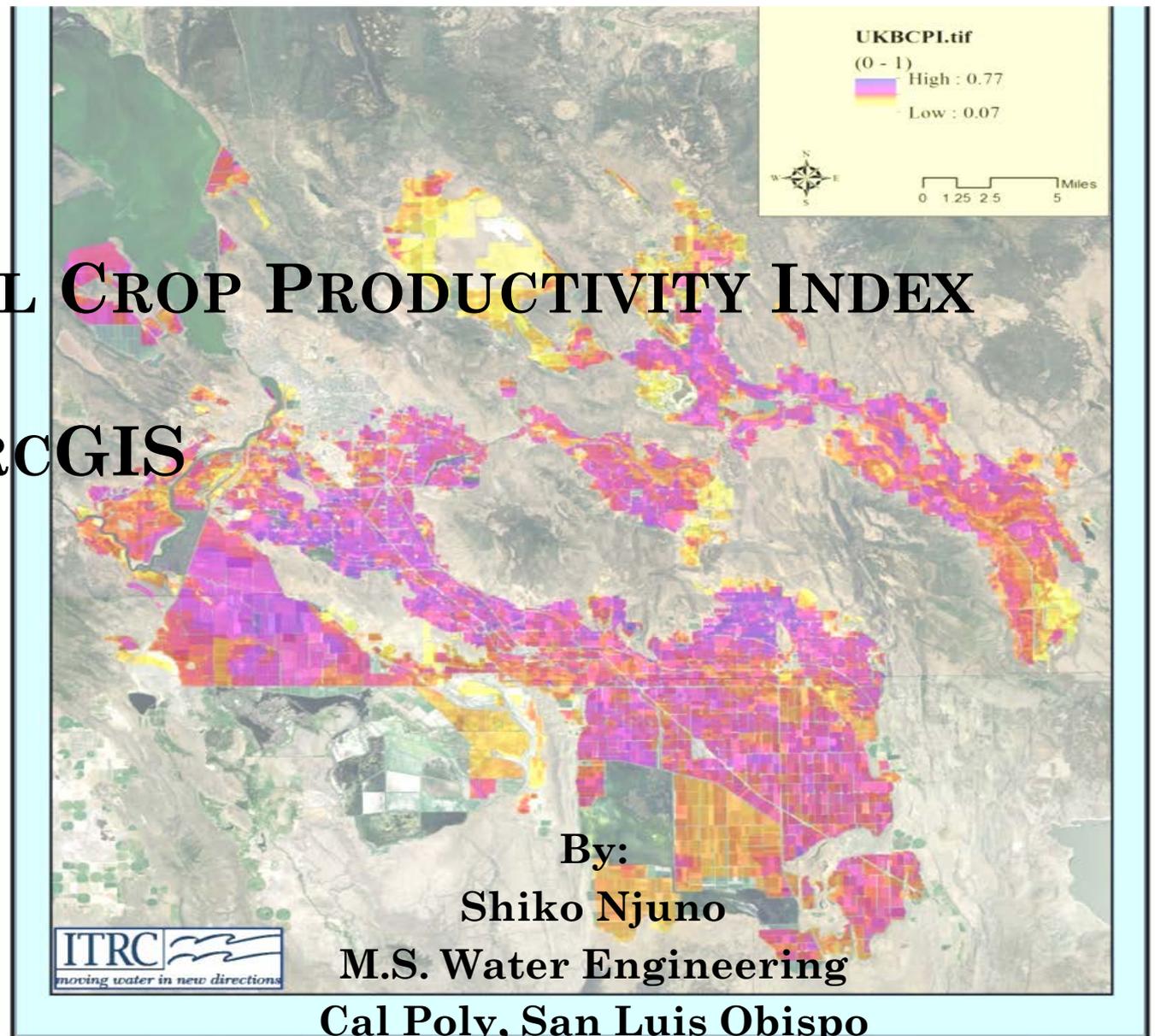


REGIONAL CROP PRODUCTIVITY INDEX TOOL USING ARCGIS



PURPOSE

To develop a robust *potential productivity indexing (PPI) mapping tool* for Agricultural lands within the region of interest *to support decision making* by water managers.



BRIEF OVERVIEW OF GIS

GIS- Geographic Information System

ArcGIS - is a comprehensive system that allows people to collect, organize, manage, analyze, communicate, and distribute geographic information.

Spatial data, typically viewed on maps, reveal patterns, illustrate problems, and show connections that may not otherwise be evident.



DATA REQUIRED

- Soil characteristics
- Crop evapotranspiration (ET)
- Water rights
- Current crop value
- Current land value



SUMMARY OF PROCEDURE

1. Data acquisition (Shapefiles or Raster files)
2. Spatial computation of actual evapotranspiration (ET) for the region
3. Pre-processing of non-GIS based data and quantitative indexing
4. Uniform raster layer development
5. Crop productivity indexing tool creation

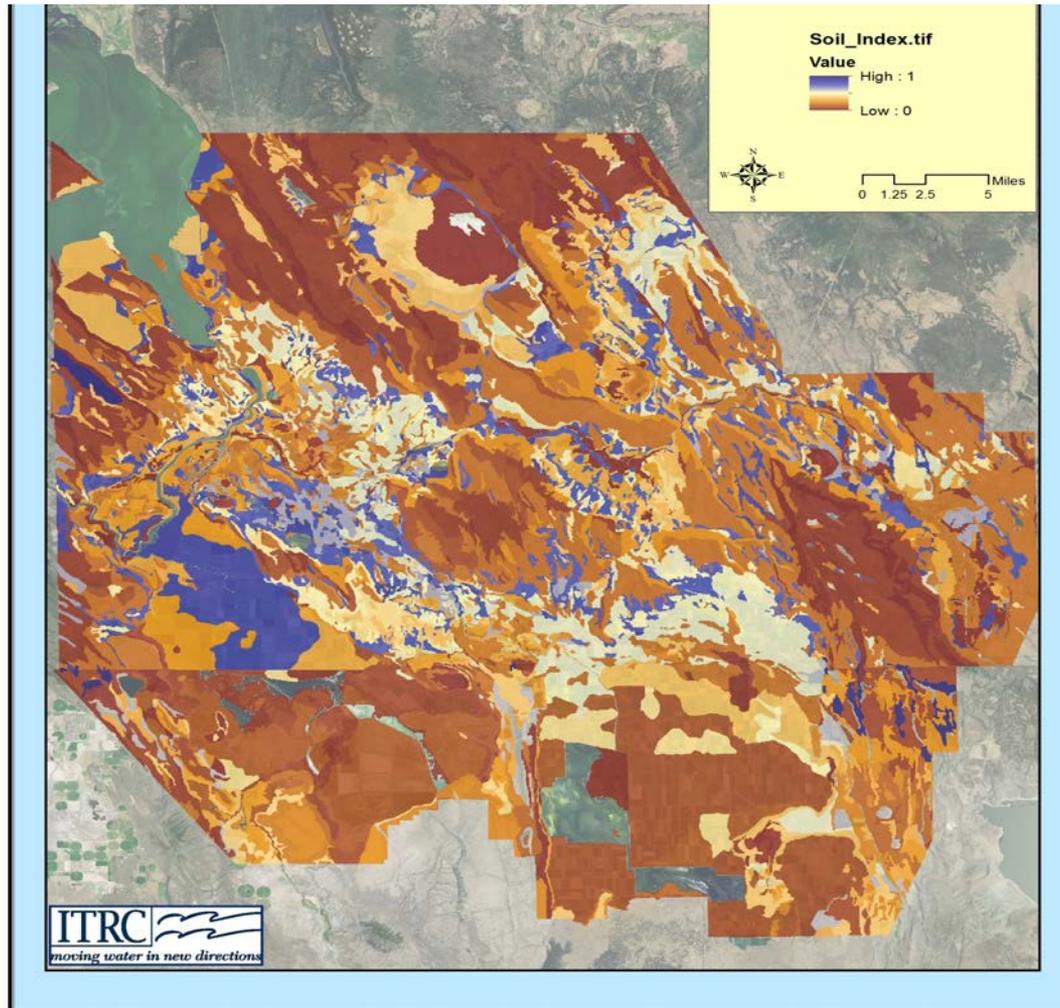


SOIL

- Natural Resources Conservation Service (NRCS)
- United States Department of Agriculture (USDA)
- National Commodity Crop Productivity Index (NCCPI)
- The result: A color coded raster file



Raster Image of Soil Index

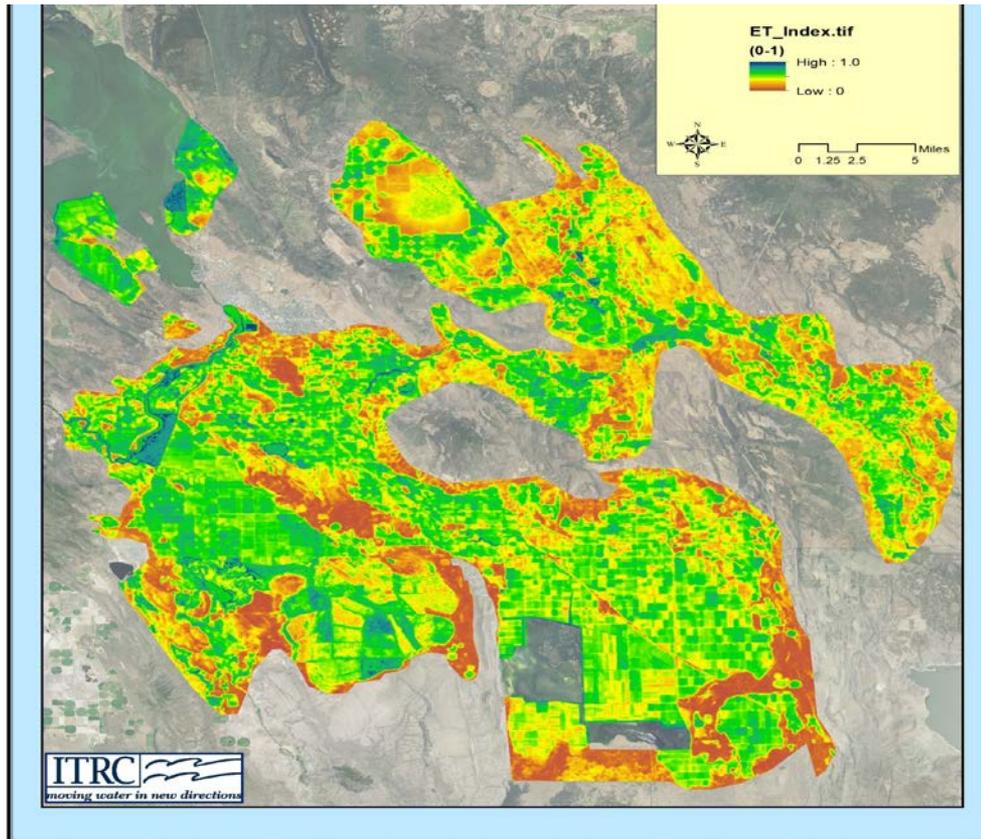


ET (EVAPOTRANSPIRATION)

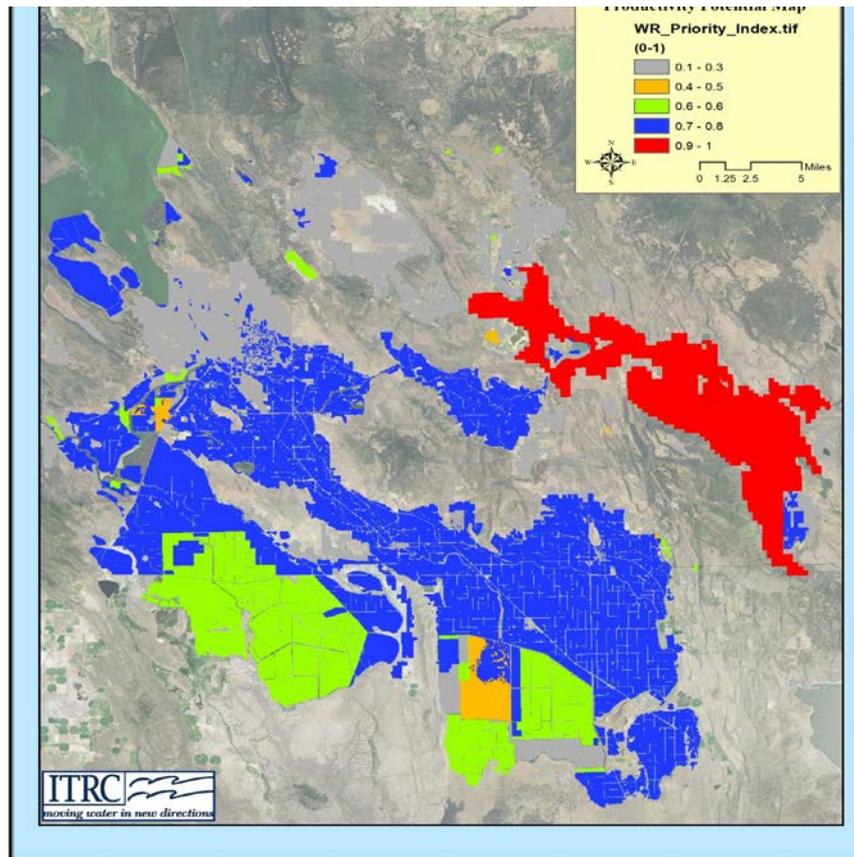
- Irrigation Training and Research Center (ITRC) conducts evaluations of actual crop ET_c using remote sensing.
- The estimations are based on inputs from the following data for the specific region:
 - LandSAT imagery
 - Weather station data (hourly and daily data)
 - Digital elevation data
 - Landuse maps
 - Spreadsheet calculated values
 - Tabulated constants



RASTER IMAGE OF ET INDEX



WATER RIGHTS INDEX RASTER IMAGE

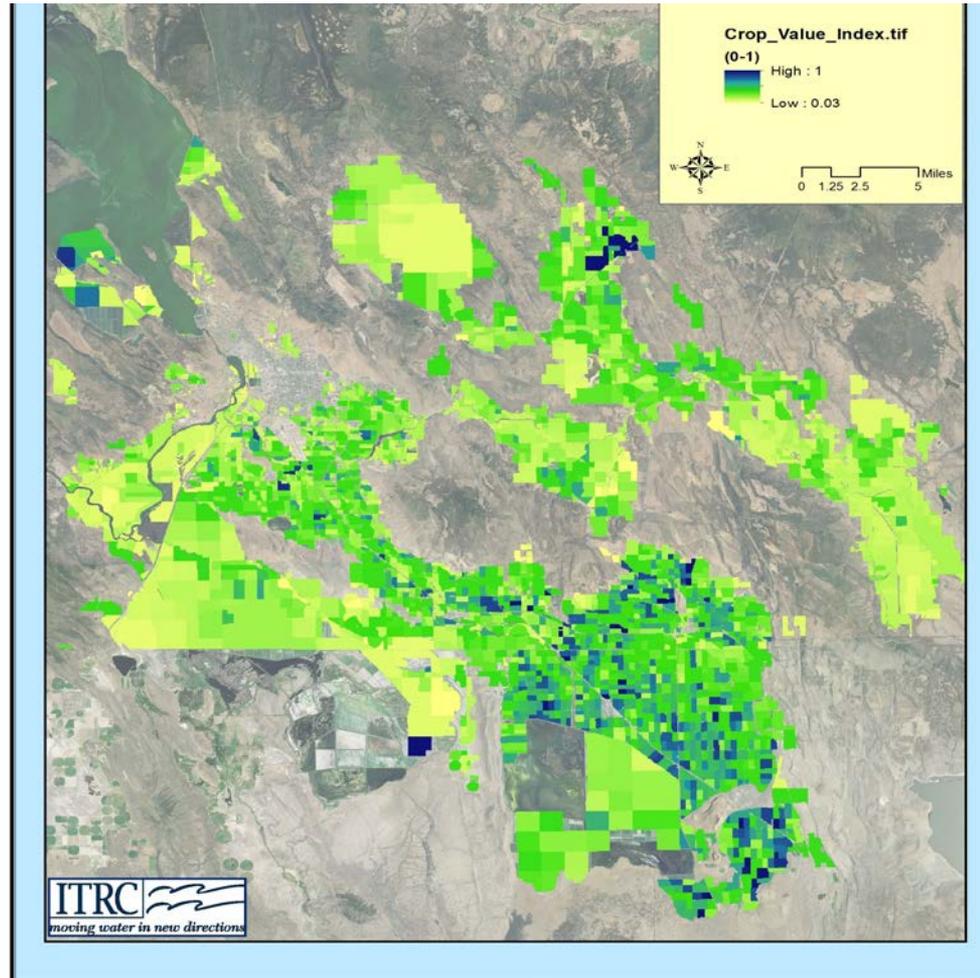


CROP VALUE

- **Crop type** information acquired from the Cropland Data Layer (CDL) from the USDA National Agricultural Statistics Service
- **Crop value** determined from various Agricultural Information Networks and Agricultural Commission Offices for the area
- **Index** computed by dividing by the highest crop value is \$/acre



CROP VALUE INDEX RASTER IMAGE

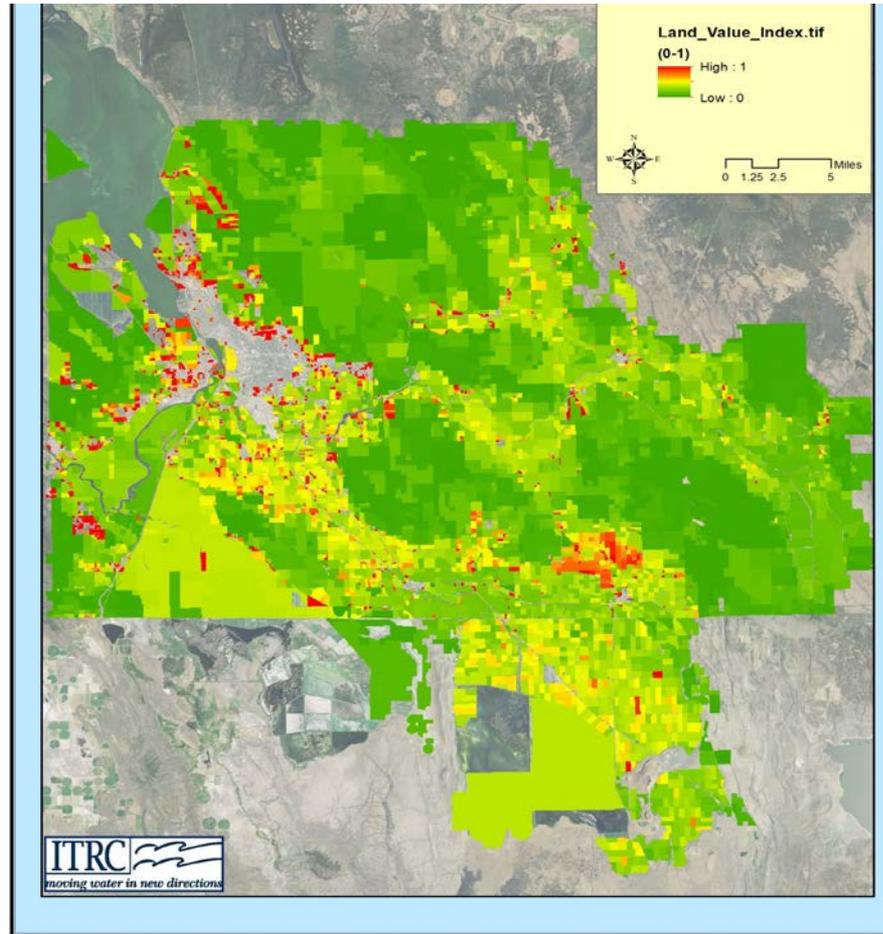


LAND VALUE

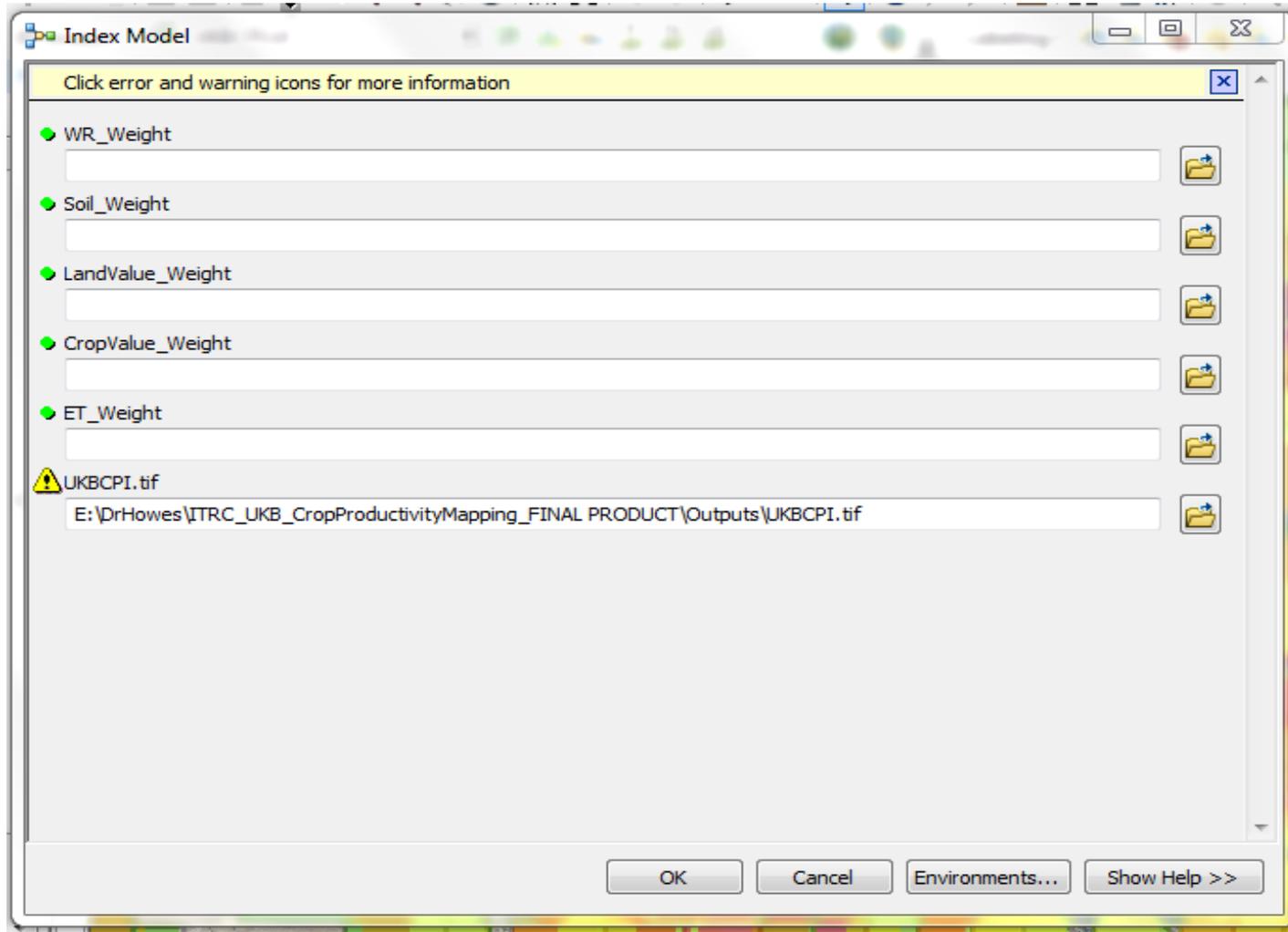
- Data acquired from the County Assessor's office in the region and ParcelQuest



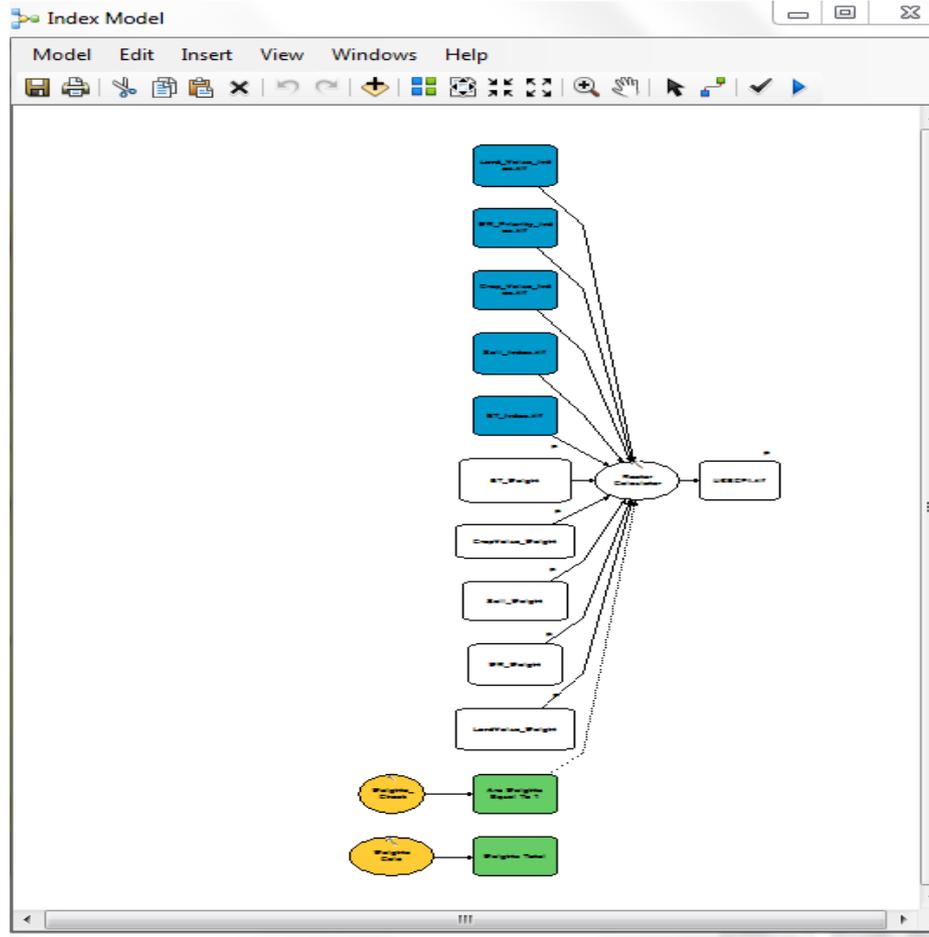
LAND VALUE INDEX RASTER IMAGE



USER INTERFACE



MODEL BUILDER COMPUTATION



SAMPLE FINAL RESULT

