DEVELOPING PRECISION FARMING MAPS USING CROP AND SOIL MODELS

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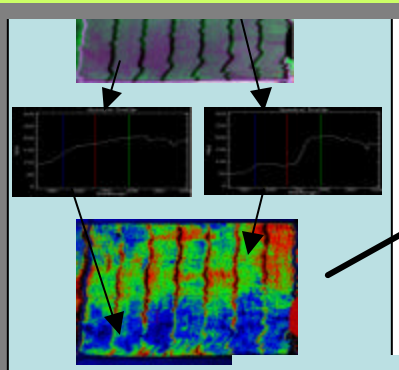
Chlorophyll Mapping



Crop Models

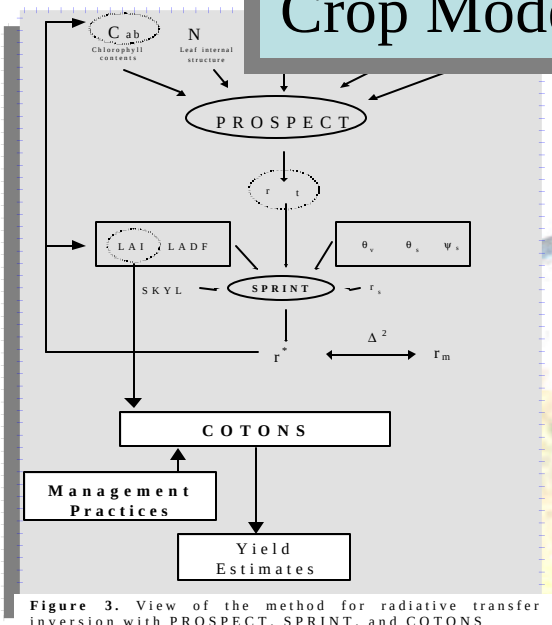
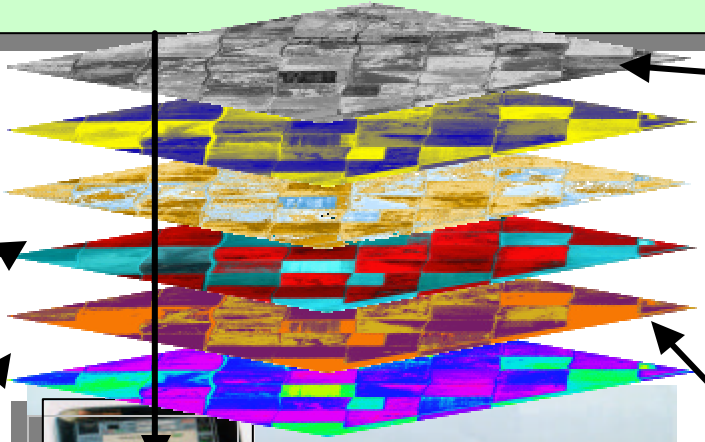


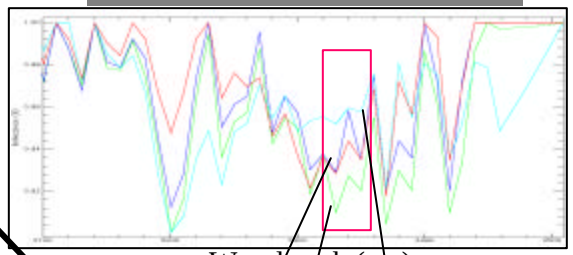
Figure 3. View of the method for radiative transfer inversion with PROSPECT, SPRINT, and COTONS



Pigment content estimated using PROSPECT + SPRINT radiative transfer models coupled with hyperspectral indices (red = high pigment concentration; blue = low pigment concentration).

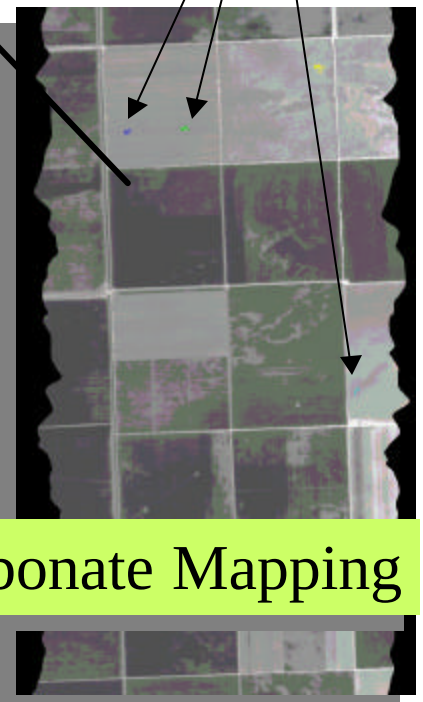
COTONS 3-D Virtual Model Simulation for cotton health (above), and yield simulation (left) based on temperature, radiation, nitrogen, water availability, and structure.

Terrain Models



Wavelength (nm)

Carbonate Mapping



At **CSTARS**, we are researching technologies to provide new farm management tools:

- To develop greater spatial information on crop conditions from an aerial perspective.
- To combine remote sensing tools and models to develop precision agriculture prescriptions.
- To develop new products from future satellites that will provide economical and timely coverage, such as hyperspectral images, allow detection of soil and crop variables, such as soil carbonates, leaf chlorophyll content, and leaf water content.