

# TI y RIEGO HIGH-TECH

## Digitalización

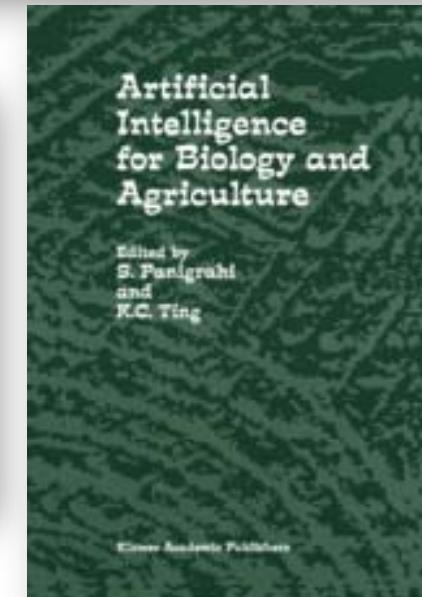


*'More crisis' is more technology, control, more money..*

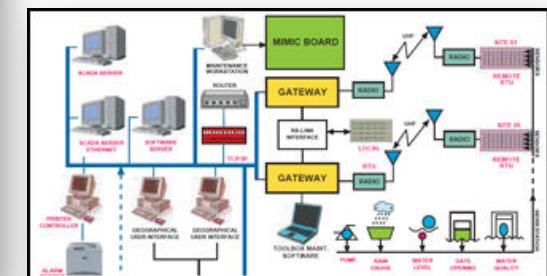
- Bio technology
  - GMs
  - High-tech irrigation
  - Industrial agriculture
- 
- Future: focus on even more complicated even more expensive solutions?
  - Conversely: Is More with Less possible??



# ARTIFICIALLY INTELLIGENT CROP IRRIGATION



# TELEMETRIA Y GESTION DEL AGUA



# IMÁGENES DIGITALES PARA LA GESTIÓN DEL AGUA

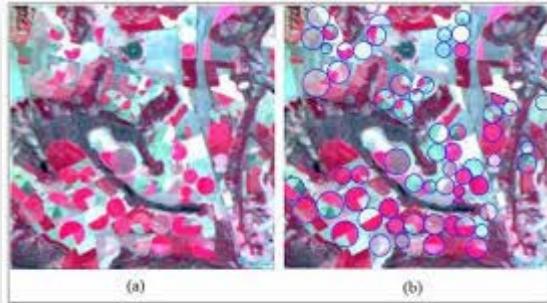
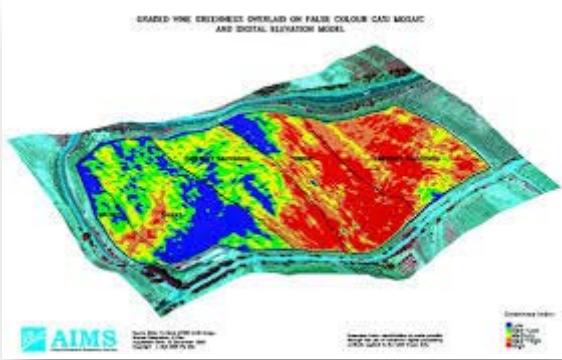
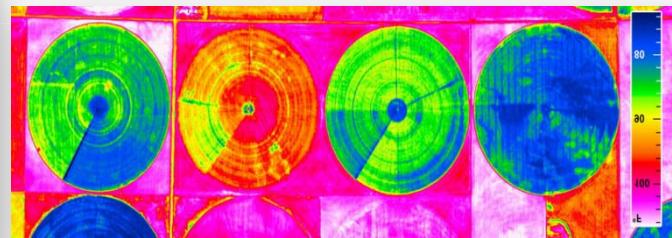
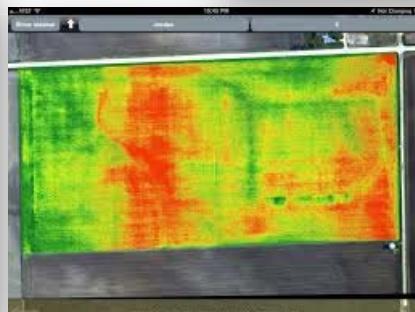
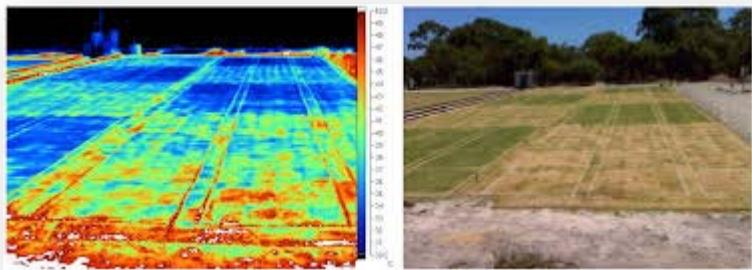
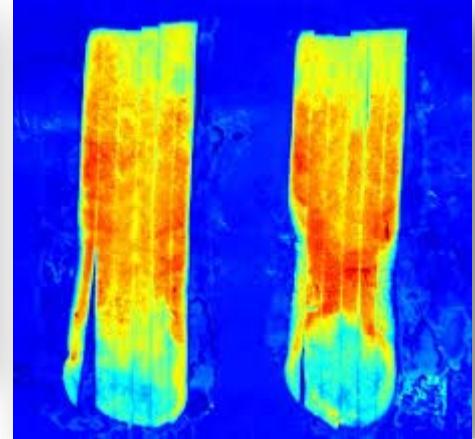


FIGURE 2. Center pivots viewed in CBERS-2B/CCD imaging\_RGB/432, 155/122 path-row. (a) Raster image and (b) Vector image.

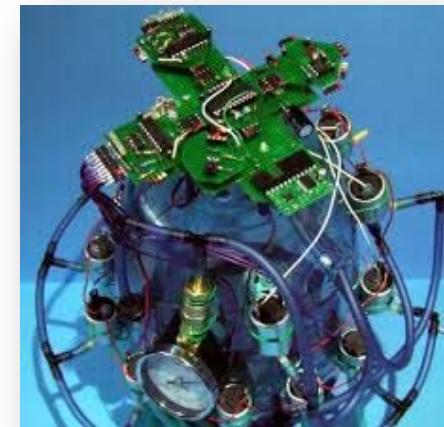
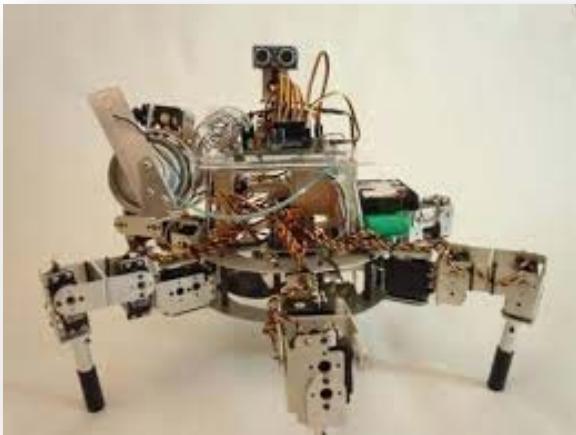


# CIENCIA Y TECNOLOGÍA DE PUNTA EN LA UTILIZACIÓN AGRÍCOLA EFICIENTE DEL RECURSO HÍDRICO

- Robotización de los sistemas de Riego
- Estrategias auto-programadas en la operación del riego.
- **Riego deficitario Kg/m<sup>3</sup> y no Kg/ha**
- Periodos críticos



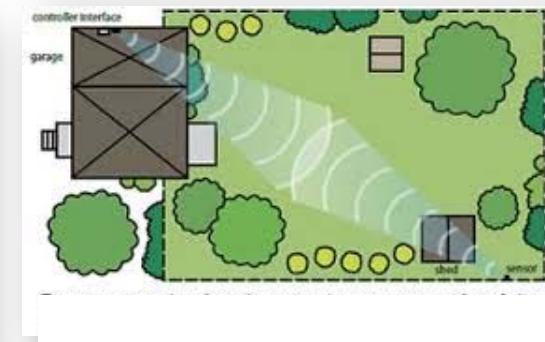
# RIEGO ROBOTIZADO



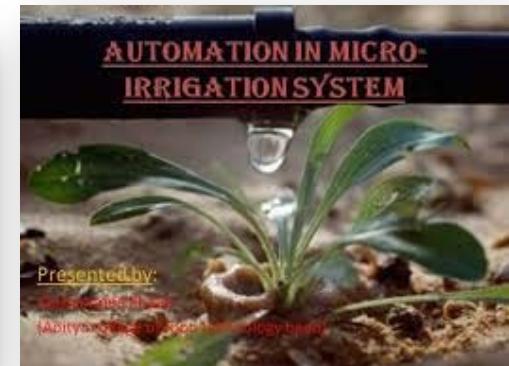
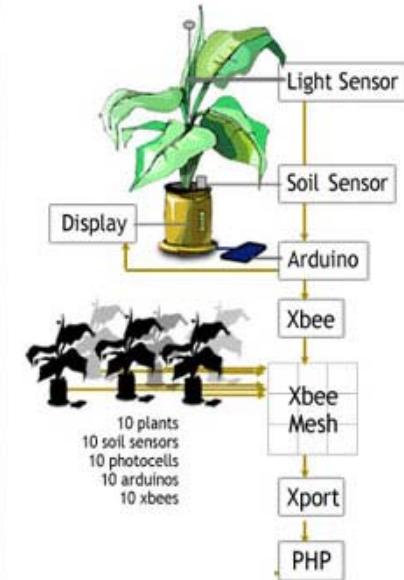
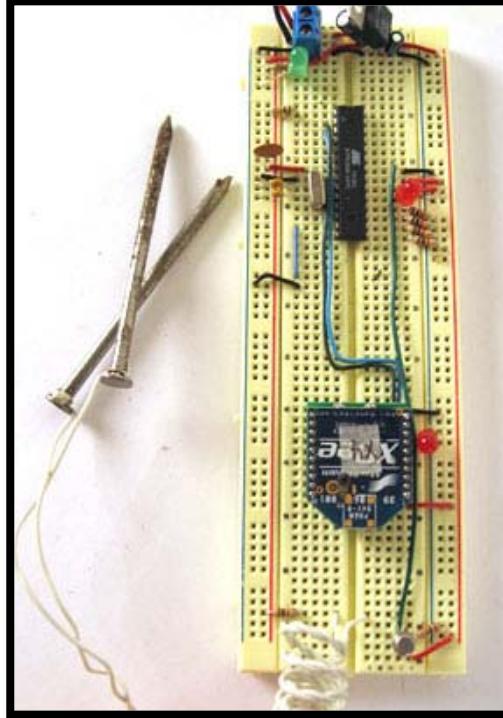
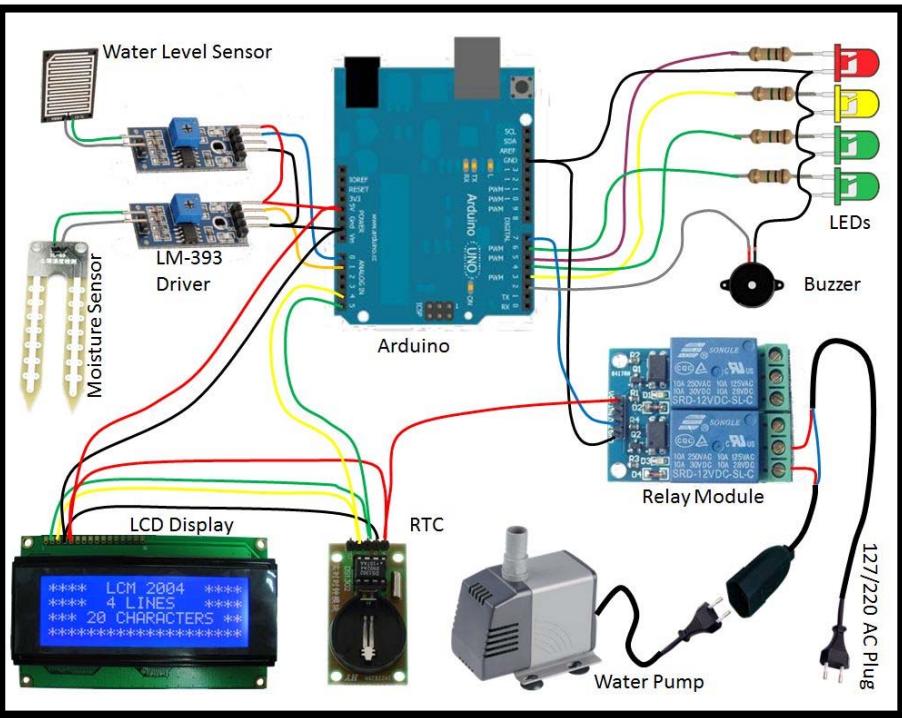
# ROBOTS EN USO DEL AGUA



# RIEGO AUTO - PROGRAMADO

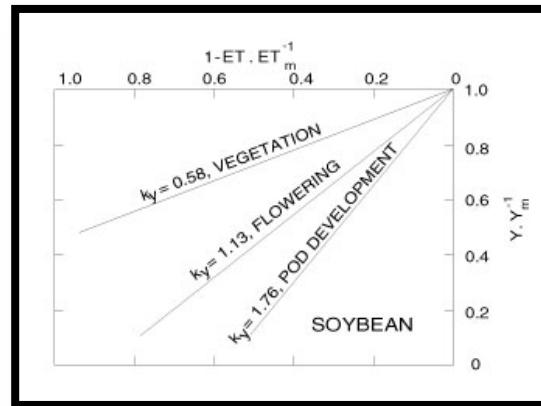


# ESTRATEGIAS AUTO-PROGRAMADAS EN LA OPERACIÓN DEL RIEGO



# CONCEPTOS CIENTIFICOS DE RIEGO DEFICITARIO

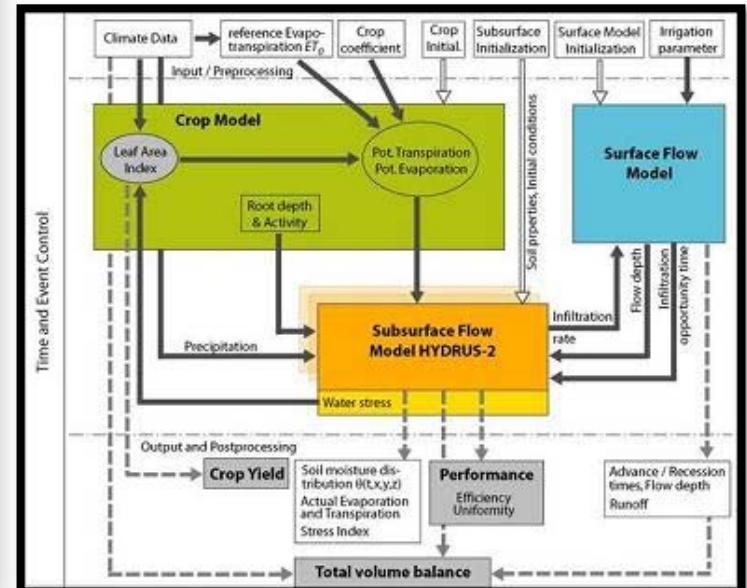
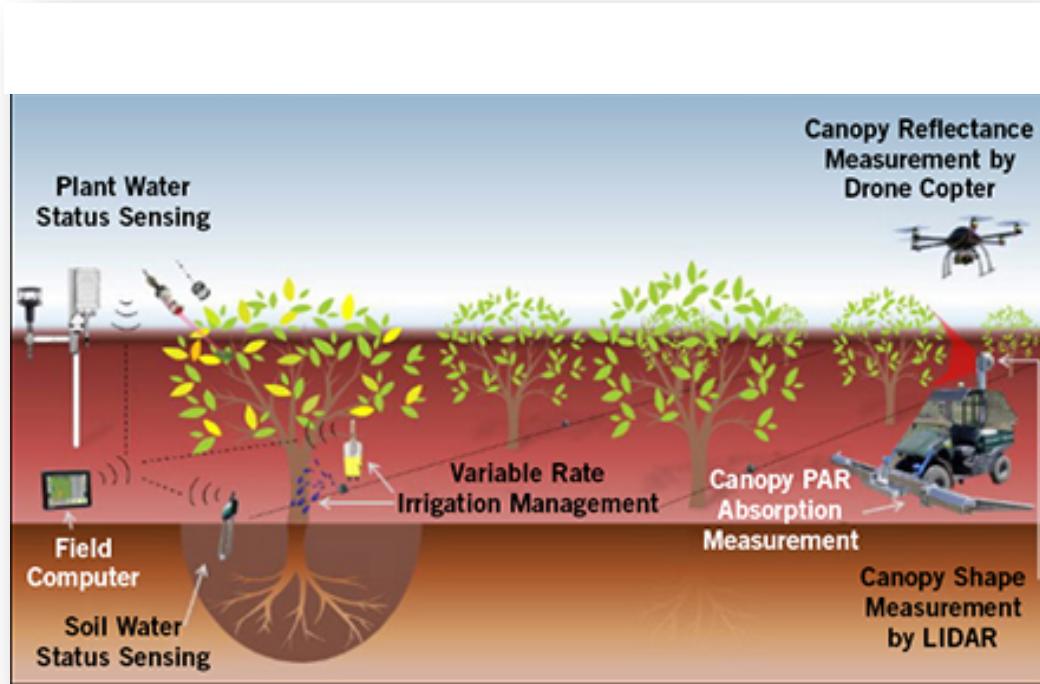
- OPTIMIZACION DE  $\text{Kg m}^{-3}$  Y  $\text{No Kg ha}^{-1}$
- PERIODOS FENOLOGICOS CRITICOS:
  - DETERMINACION FISIOLOGICA
  - CONTROL DE LA INTENSIDAD Y DURACION DEL DEFICIT



# TECNOLOGIA CONCEPTUAL

**MANEJO DE PRECISION DEL DOSEL – RAICES =  $f$ ( DISPONIBILIDAD HIDRICA)**

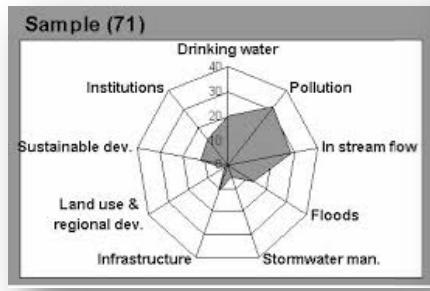
## SISTEMAS DE TOMA DE DECISIONES BASADOS EN SENsoRES AMBIENTALES



# **GESTION DEL RECURSO HIDRICO**

## **DINAMICA INTERPERSONAL ENTRE LOS ACTORES DEL DRAMA HIDRICO**

- RELACIONES ENTRE USUARIOS ORGANIZADOS Y EL SISTEMA GUBERNAMENTAL.**
- LEGISLACION HIDRICA INTEGRAL.**
- PROFESIONALIZACION DE LA GESTION CUANTITATIVA DEL AGUA.**



# MUCHAS GRACIAS POR SU ATENCION

