



Our Students and Food: College of Agricultural and Environmental Sciences

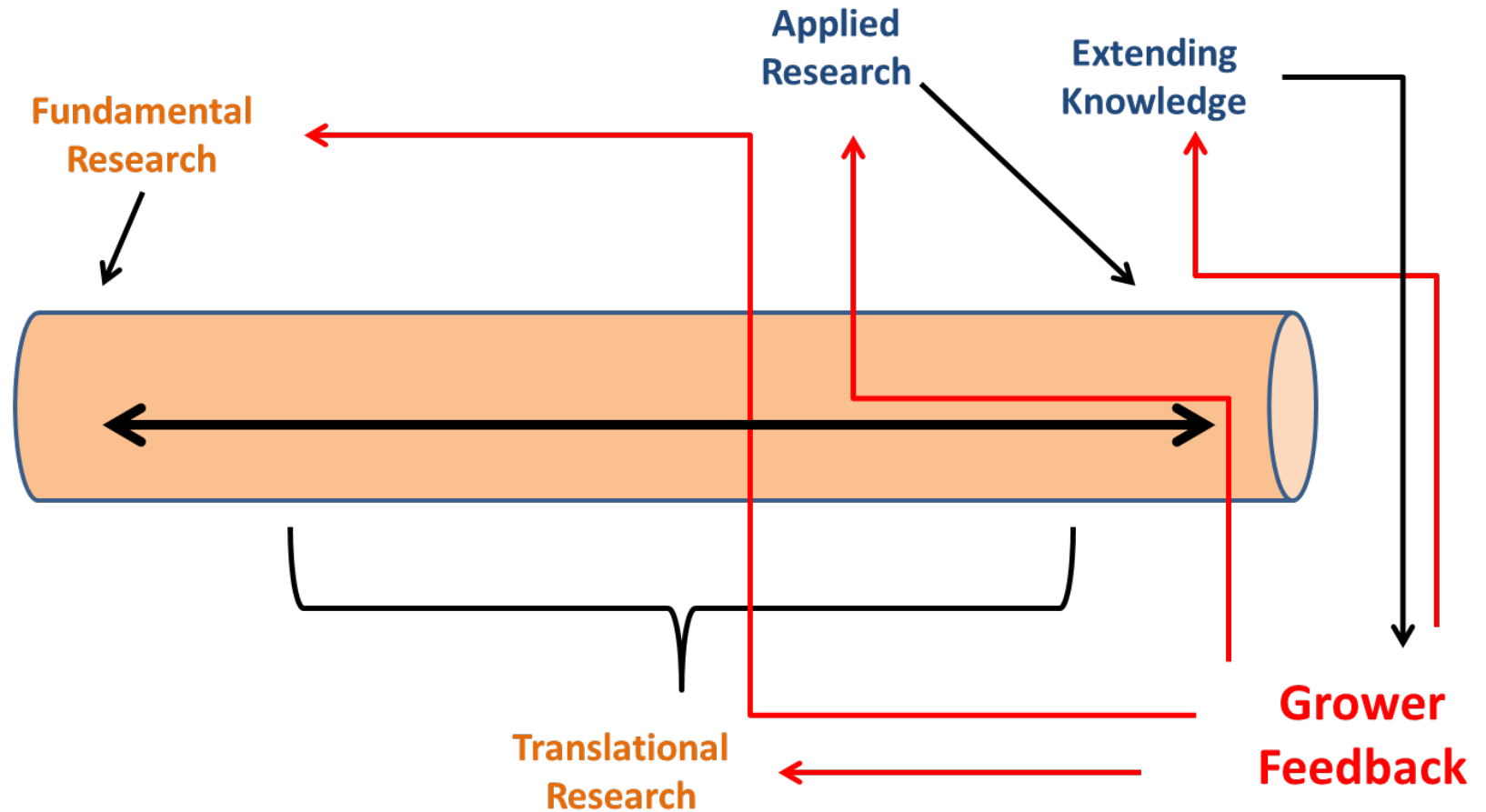
**Ed Lewis, Associate Dean
Agricultural Sciences**

Essential Elements - 5

Challenges for UCD....and everybody else

- 400+ commodities, soil & water ecosystems, 38 million people
- Tensions at the agriculture / environment / human interface
- Controversial but appropriate research – climate change, water policy, GMOs, air quality, soil nitrates, poverty, etc.
- Infrastructure maintenance and renovation costs; increased high-tech laboratory needs for research

The Research Pipeline: A Continuum



Smart farming methods and innovative farming technologies for environmental, economic and social sustainability of the food production system by the year 2050

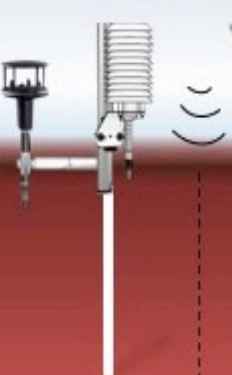


Smart Farm at UCDAVIS

Canopy Reflectance Measurement by Drone Copter

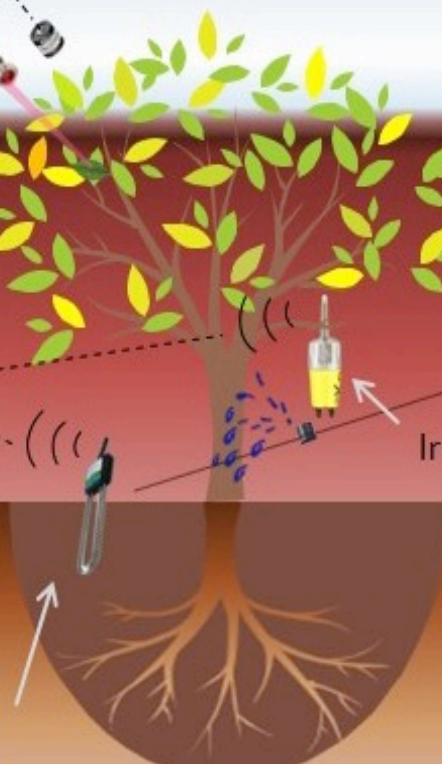


Plant Water Status Sensing



Field Computer

Soil Water Status Sensing



Variable Rate Irrigation Management



Canopy PAR Absorption Management



Canopy Shape Measurement by LIDAR

- Shrini Upadhyaya



Private/Public Partnerships

- California Safe Soils

Recycled food: 1 supermarket, 1 day



Recycling of Food into Fertilizer

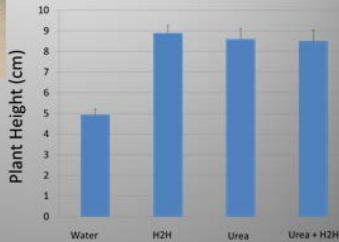


CSS Pilot Plant, West Sacramento, CA



UC Davis Research Results*

Tomato plants: Laboratory environment

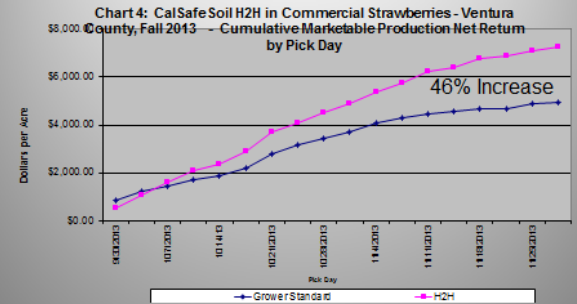


Field Trial Research - Processing Tomatoes

Canopy response to drip irrigation - Los Banos, CA June 2013



Cumulative Net Return to Grower



Research and Students

- **All CA&ES faculty have research programs**
 - **Laboratories**
 - **Field-based projects**
 - **Surveys**
 - **Community Development**
- **Most faculty have students in their programs**
- **All students are encouraged to participate**