Research for Agriculture, Natural Resources & Thriving Communities

Supporting Vibrant Ecosystems, Healthy People & Economic Development for California

Dr. Glenda Humiston
January 5, 2015

UC CE

Agricultural Experiment Station

- 650+ academic researchers across the entire UC system

UC Cooperative Extension

- 200+ local Advisors who live and work in the communities they serve
- 130+ Campus-based UCCE Specialists

Research and Extension Centers

- 9 locations statewide

Statewide Programs & Institutes

- Ag Issues Center
- Integrated Pest Management Center
- Nutrition Policy Institute
- Sustainable Ag Research & Education
- Water Research Institute
- Youth Development and 4-H

Berkeley UNIVERSITY OF CALIFORNIA College of Natural Resources

UCDAVIS COLLEGE OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES

UC RIVERSIDE UNIVERSITY OF CALIFORNIA College of Natural & Agricultural Sciences

UCDAVIS VETERINARY MEDICINE

ANR has created a Co-Branding system easy for partners to understand.

Berkeley UNIVERSITY OF CALIFORNIA College of Natural Resources

UC CE

NUTRITION POLICY INSTITUTE NPI

CALIFORNIA INSTITUTE FOR WATER RESOURCES

AIC

UCDAVIS COLLEGE OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES

Master Gardener UCCE

IGIS

RECS

UCDAVIS VETERINARY MEDICINE

UC RIVERSIDE UNIVERSITY OF CALIFORNIA College of Natural & Agricultural Sciences

UC IPM

California hub of the national network of water research institutes supported by the federal Water Resources Research Act of 1964.

http://ciwr.ucanr.edu/

- ✓ Integrate CA's research, extension, & education programs
- ✓ Connect academic institutions with water managers & users
- ✓ Develop relevant and timely science-based information for improved decision-making

The UC ANR Nutrition Policy Institute is studying the impact of a USDA grant aimed at promoting healthier lunches.

"*Many schools are making do with obsolete equipment that cannot readily meet the new, tougher federal meal standards*," said Kenneth Hecht, NPI director of policy.

Congressman DeSaulnier eats a healthy lunch with first graders

"Longitudinal cohort study: risk for obesity & cardiovascular disease among adolescents".

- **UCSD Global Health Initiative: Sheila Gahagan**
- **UC ANR Nutrition Policy Institute: Suzanna Martinez**

University of California
Agriculture and Natural Resources
Nutrition Policy Institute

UC San Diego
Health Sciences

The New Zealand mudsnail, Potamopyrgus antipodarum, is an aquatic invasive species first found in the US in 1987, now spread throughout the western states. First seen in California late 1990's and now in the Santa Monica Mountains and elsewhere in CA.

"New Zealand Mudsnails in the Santa Clara River".

UCSB: Tom Dudley

UCCE Advisor: Sabrina Drill

UCSF GLOBAL HEALTH SCIENCES

CTSI at UCSF

UC IPM

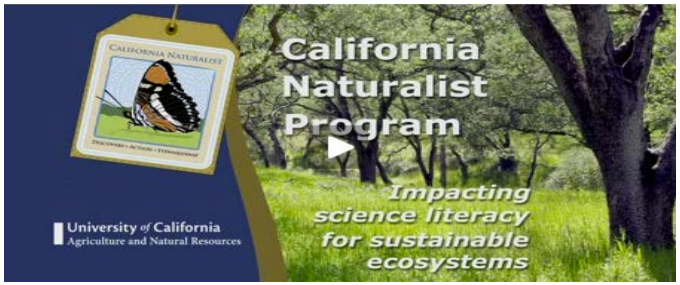
“Develop IPM program to reduce the exposure to pesticides for young children in family child care homes in California”.

UCSF Investigator: Abbey Alkon, RN, PhD, FAAN

UCCE Advisor: Andrew Sutherland

Sponsor: California Environmental Protection Agency,
Department of Pesticide Regulation

GOAL: prevent young children from potentially being exposed to pesticides. Twenty-one daycares – in Alameda, Santa Cruz and Stanislaus Counties – will take part in the pilot project.

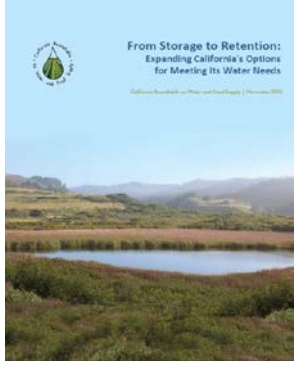


The UC ANR California Naturalist Program fosters a diverse community of naturalists to promote stewardship of California's natural resources through education and service.

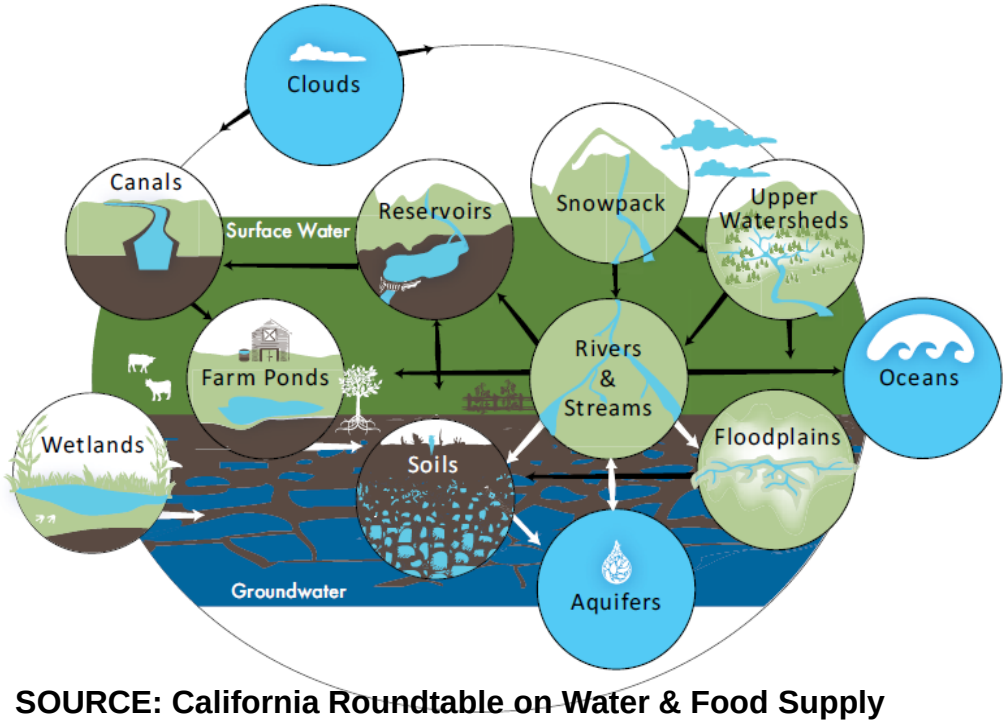
California Naturalist Program works with UC Natural Reserve System on programs and to train volunteers. Initial sites include:

- ✓ UCB Sagehen Creek Field Station
- ✓ UCM Merced Vernal Pools and Grassland Reserve
- ✓ UCM Sierra Nevada Research Station-Yosemite Field Station
- ✓ UCSB Sedgewick Reserve
- ✓ UCSB Kenneth Norris Rancho Marino Reserve at Camp Ocean Pines
- ✓ UCSD Elliott Chaparral Reserve
- ✓ UCSD Kendall-Frost Mission Bay Marsh Reserve
- ✓ UCSD Dawson Los Monos Canyon Reserve

Healthy watersheds in Sierra & Cascade ranges could produce 9–16% more water for California.



http://aginnovations.org/images/uploads/CRWFS_Storage_FINAL.pdf



SOURCE: California Roundtable on Water & Food Supply
A project of AgInnovations Network

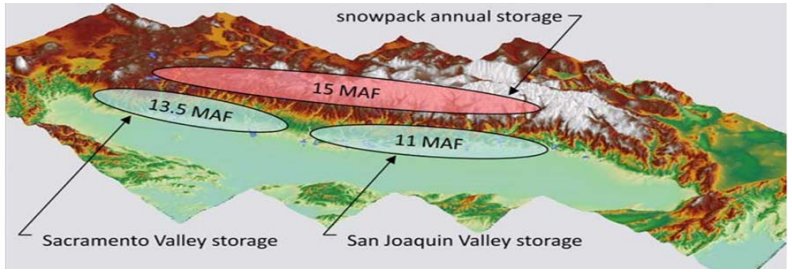
"Effect of forest management on water yields and other ecosystem services in Sierra Nevada forests".

UCM: Roger Bales

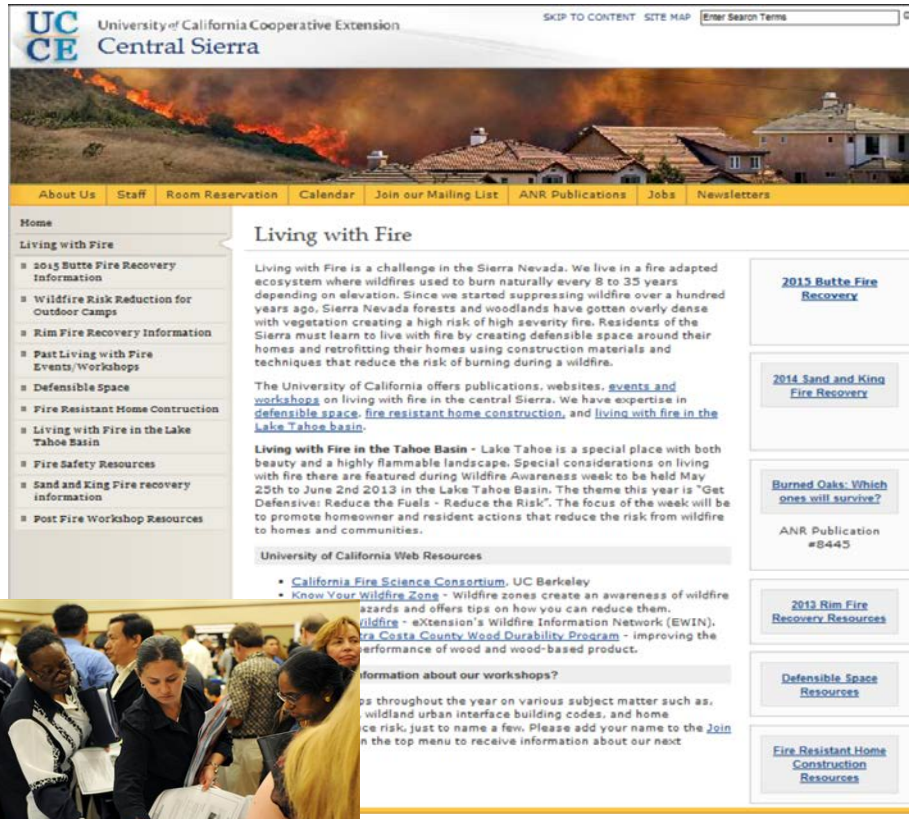
UCB AES Faculty: Kevin O'Hara

UCCE Specialist: Bill Stewart

UCCE Advisor: Susan Kocher



Expanded Use of Biomass & Better Understanding of Forest Ecosystems will Expand Fire/Disaster Preparation and Improve Local Economies.

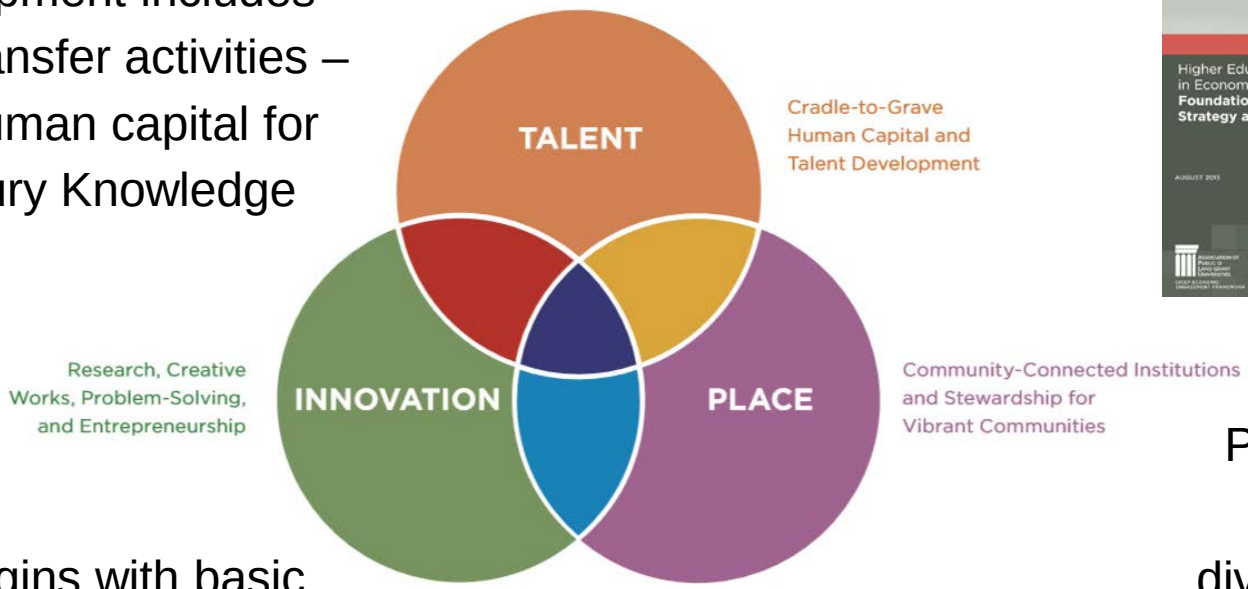


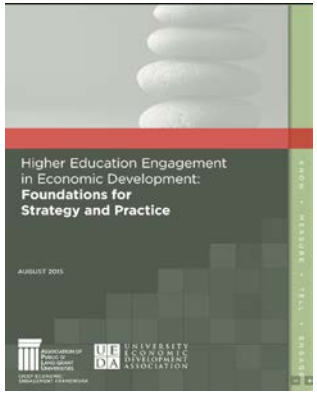
EDEN Provides Disaster Education through the Land-Grant University System's Research and Cooperative Extension.

EDEN
EXTENSION DISASTER EDUCATION NETWORK

Since 1976 UEDA expands economic opportunity by leveraging research, community resources, campus planning, talent development, and technology commercialization.

Talent development includes knowledge transfer activities – developing human capital for the 21st century Knowledge Economy.





Innovation begins with basic research, builds on knowledge creation, tech transfer and application in ways that are useful and relevant to society.

Place is the many and diverse ways institutions contribute to attractive, competitive communities – places where people want to live; work; raise families; participate in civic life; and retire.

WORKFORCE & TRAINING

TRADE / NEW MARKETS

SUPPLIER NETWORKS

ACCESS TO CAPITAL

INFRASTRUCTURE

BUY/PROCURE LOCAL

LOCAL ECON/ECO-SYSTEMS

RESEARCH AND INNOVATION

OPERATIONAL IMPROVEMENTS

Central Valley AgPLUS Food and Beverage Manufacturing Consortium

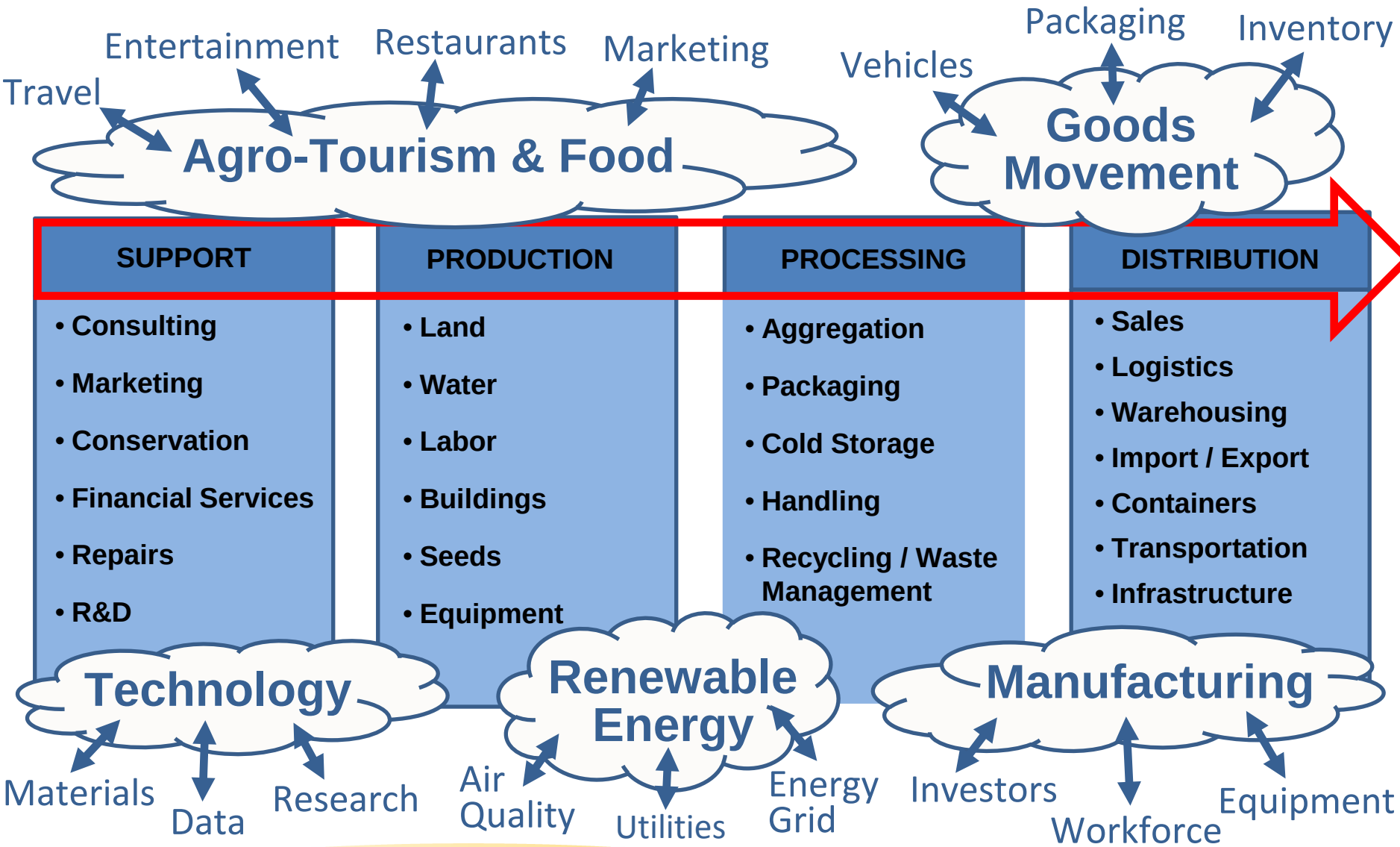
UC DAVIS COLLEGE OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES

UC MERCED UNIVERSITY OF CALIFORNIA

Global Food Initiative

University of California Agriculture and Natural Resources

Industry Clusters & Value Chains



Pursuing Net-Zero Water Use for Ag

U.C. Davis: Jess Jackson Sustainable Winery Building

Showcasing “smart” technology that maximizes environmental capabilities of winery, brewery, and food-processing complex.

- ✓ Automated systems to clean equipment
- ✓ High-purity filtration of rainwater
- ✓ Off-peak processing, …and more!

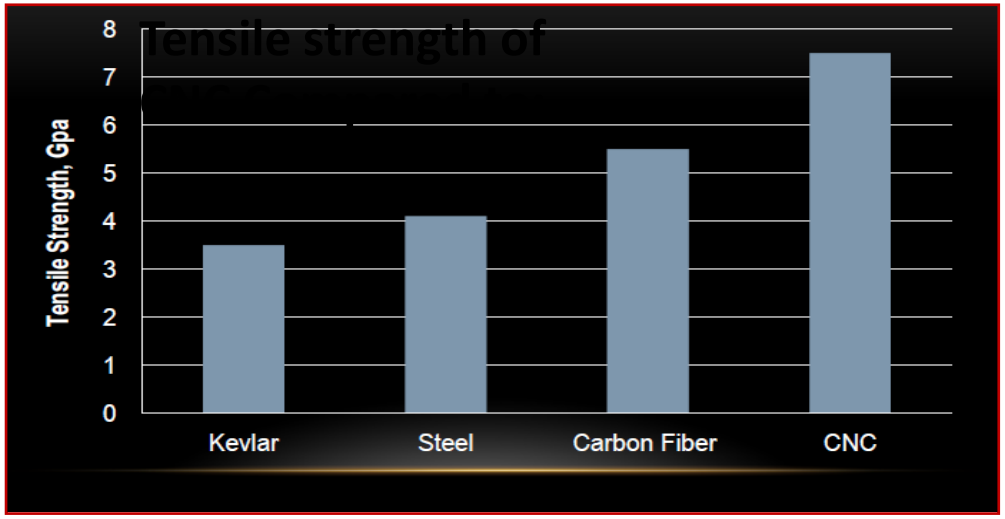
90% of water & chemicals from each cleaning cycle is captured and processed for future use, being used as many as 10 times.

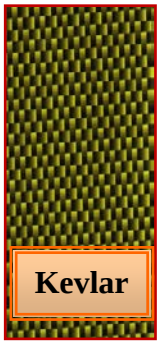
Over 300 California Firms Produce a Wide Array of Bio-Based Products

February 2012: President Obama's Executive Order requires federal agencies and contractors to utilize biobased products.

Opportunity: Cellulosic Nanomaterials (CNC)

✓ Stronger ✓ Lighter ✓ Cheaper ✓ Renewable





Wood pellets
$155 (100% conversion)

Fuel Ethanol
$255 (@100 gallons/ton)

High Brightness Paper
$500 ($1,000/ton - 45% yield)

Cellulose Nanocrystals
$1,350 ($6,000/ton - 23% yield)

SOURCE: USFS Forest Products Laboratory 2013

Working Landscapes

Agriculture ~ Forests ~ Fisheries ~ Mining

Watersheds ~ Energy ~ Recreation ~ Habitat

1.2 Million Jobs in California

$318 Billion Direct Sales & Exports

272,000+ New Jobs in Five Years

www.caeconomy.org/resources/entry/2013-california-economic-summit-playbook

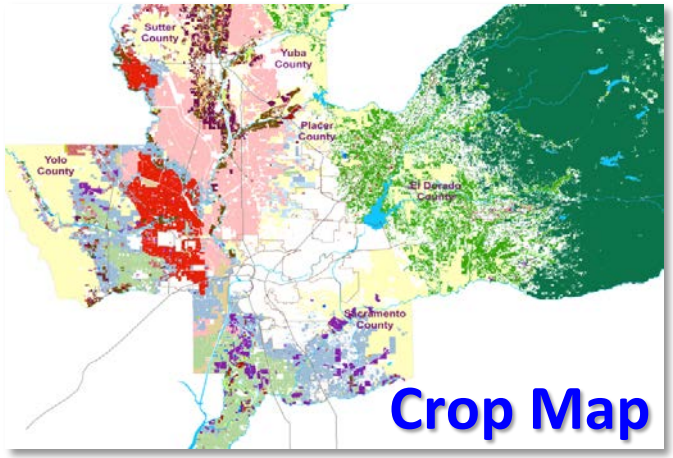
2012 Data developed by Center of Excellence Research Office, CA Community Colleges

University of California
Agriculture and Natural Resources

Rural-Urban Connections Strategy

Sacramento Area Council of Governments • www.sacog.org/RUCS

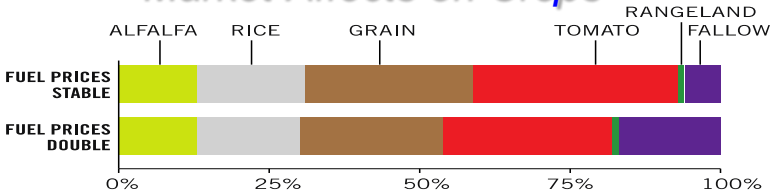
SACRAMENTO REGION
RURAL-URBAN CONNECTIONS STRATEGY



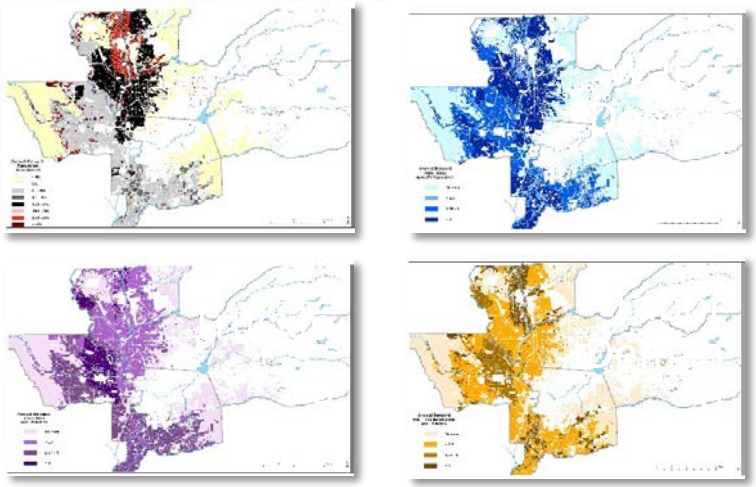
RUCS Scenario Analysis Tool

Modules Informing Scenarios

Market Affects on Crops



Local Market Food Production



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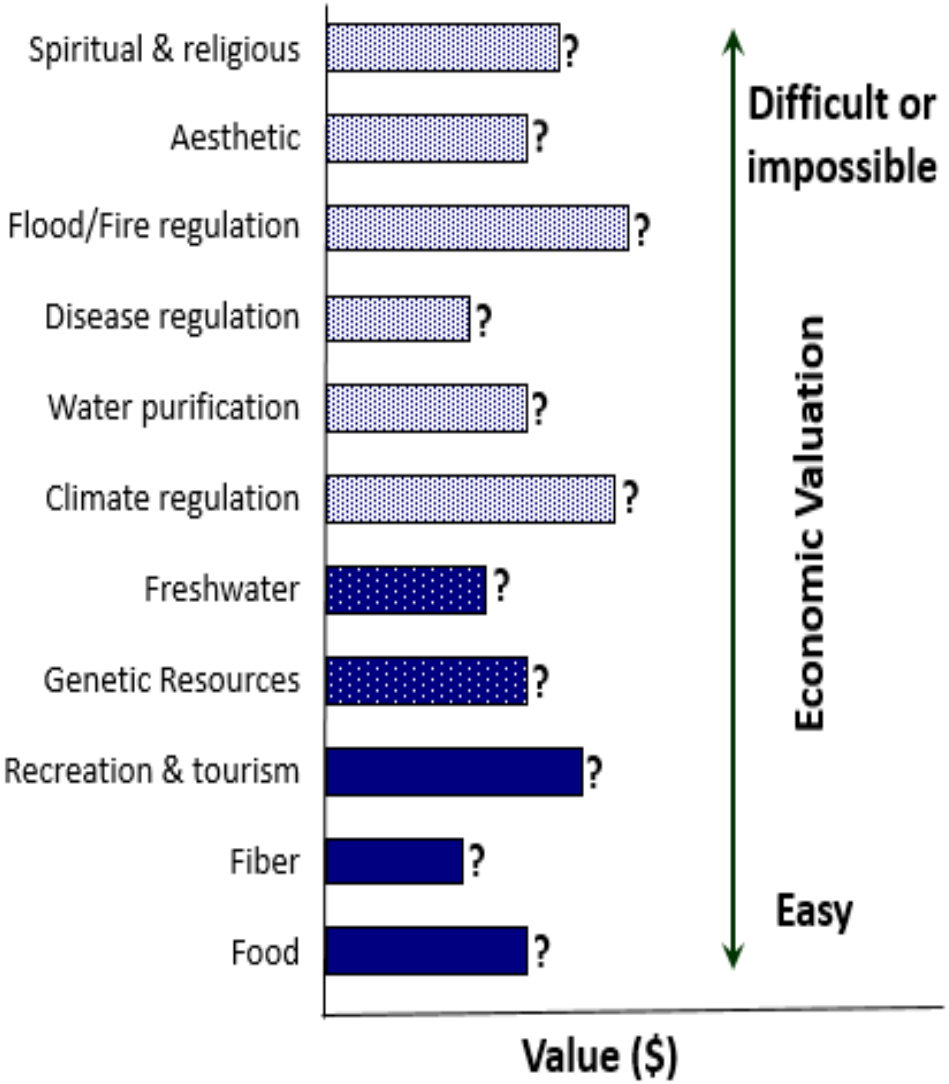
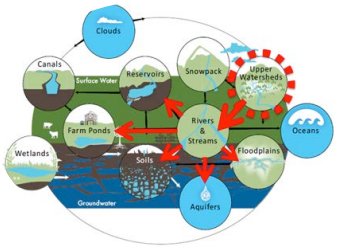
Ecosystem Services are Vital Natural Capital



“Layers” of Funding & Economic Activity Will be Needed

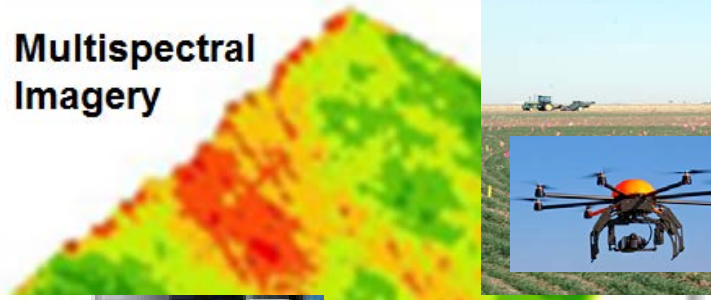
Value of Biobased Products will help finance forest health activities – probably not enough.

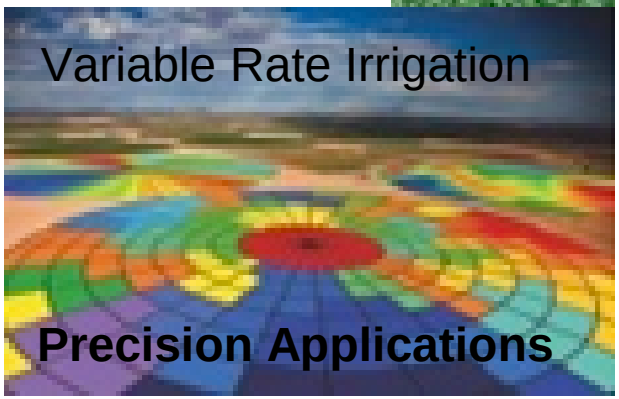
Augment with Cap & Trade Credits

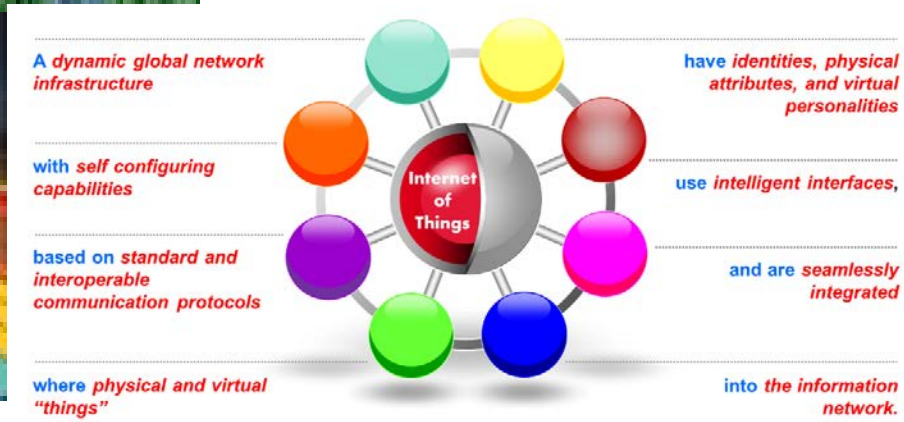


Need to monetize value of “reclaimed” water from forest health activities!

Growth in Food, Fiber & Natural Resources' Sectors Require Innovation & New Tech

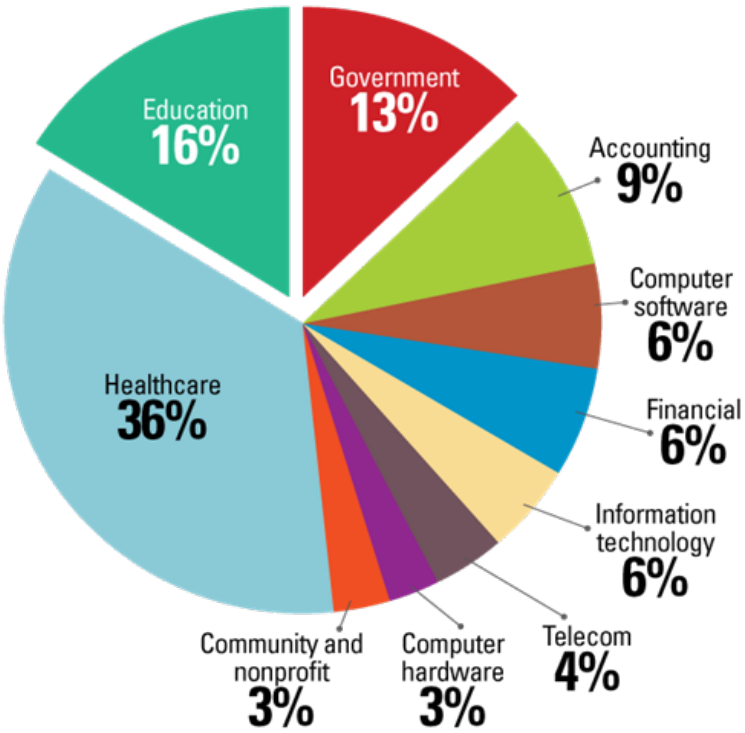






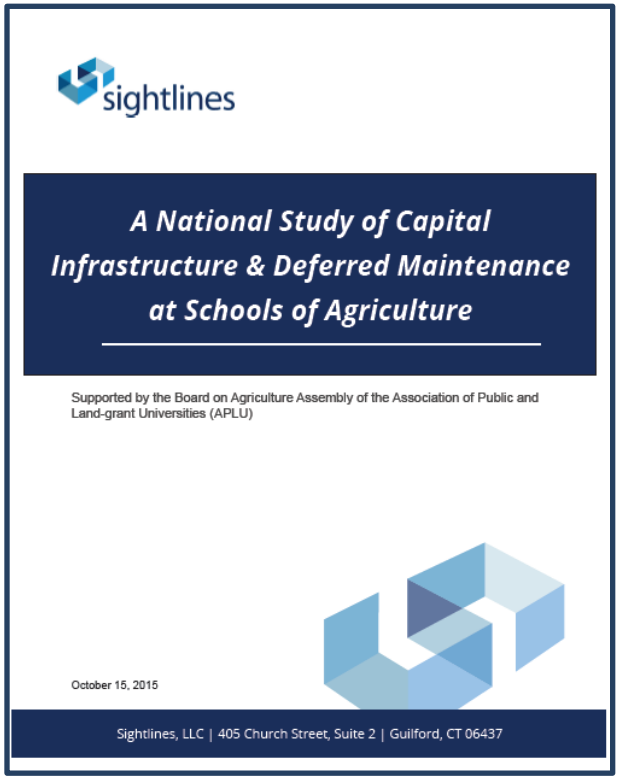
Threats to University Intellectual Property

- Exposing intellectual property can damage UC's reputation and opportunities for revenue
- IP theft is a key goal of cyber-attacks
- Much research is pre-patent and is very vulnerable to theft
- Most IP exists with faculty, staff and students in earliest stages
- More focus is place on regulated personnel data over IP
- Disagreement about the place of IP in academia



Most breaches in 2014

Deferred Maintenance & Obsolete Facilities Hamper Agricultural Research


sightlines

A National Study of Capital Infrastructure & Deferred Maintenance at Schools of Agriculture

Supported by the Board on Agriculture Assembly of the Association of Public and Land-grant Universities (APLU)

October 15, 2015

Sightlines, LLC | 405 Church Street, Suite 2 | Guilford, CT 06437

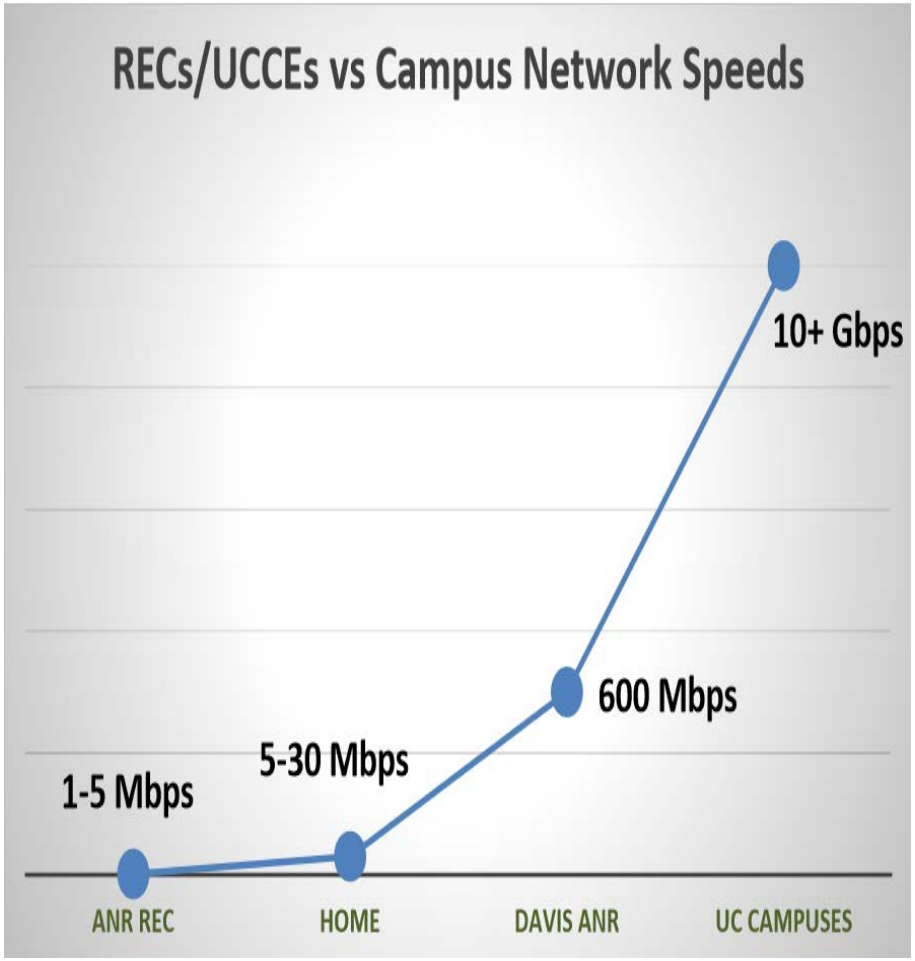
www.aplu.org/projects-and-initiatives/agriculture-human-sciences-and-natural-resources/DeferredMaintenance_SchoolsofAg.pdf

Highlights of Key Findings

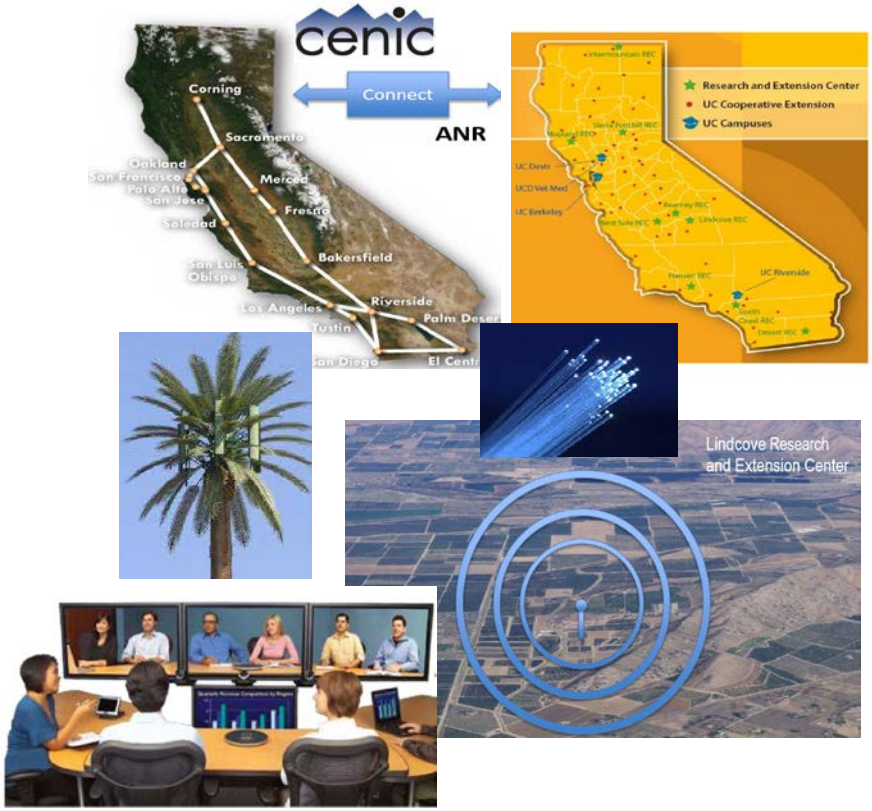
- $8.4 billion in total deferred maintenance
- Replacement value of these buildings is $29 billion.
- $6.7 billion in deferred maintenance in facilities over 25 years old

Leverage Need to Invest in infrastructure

- ✓ Research Support
- ✓ Distance Learning
- ✓ Video-Conferencing
- ✓ Emergency Response
- ✓ Weather stations
- ✓ Climate data
- ✓ Flux towers
- ✓ and more…



ANR investing now over $1.6 million in high speed connectivity for Research & Extension Centers (RECS) and select county operations to enhance research projects and sharing info with stakeholders.



NEXT THREE YEARS: Statewide strategy to upgrade entire UC ANR research and extension infrastructure!

$300+ million ~ Public-Private Collaborations ~ Incubators

Strategy for a Sustainable California = SYNERGY

Synergia (Greek): creation of a whole greater than the sum of its parts.

Synergos (Greek): "working together".

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