FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

# IMPROVING THE VALUE OF AGRICULTURAL INSURANCE

Tara (Steinmetz) Chiu, Assistant Director
Feed the Future Innovation Lab for Assets & Market Access
University of California, Davis

13th International Microinsurance Conference 2017
*Lima, Peru | 9 November 2017*

***basis.ucdavis.edu***

USAID FROM THE AMERICAN PEOPLE

INNOVATION LAB FOR ASSETS & MARKET ACCESS
BASIS

UCDAVIS UNIVERSITY OF CALIFORNIA

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

# Index-based agricultural insurance has significant potential for welfare impacts.

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

# COSTLY COPING FOR UNINSURED RISK

## Reducing Consumption

- To protect remaining assets, households – especially the relatively poorer households – reduce consumption..
- This can lead to long-term negative impacts, particularly stunting of children under five.
- This, in turn, can lead to the intergenerational transfer of poverty.

## Selling Assets

- Some households may sell off remaining assets to smooth consumption.
- Can place households in a poverty trap if the household no longer has the minimum assets necessary to maintain livelihoods.
- Can make the negative impacts of a shock last years.

**Relatively poor insured households reduced use of this strategy 62%.**

**Relatively better-off insured households reduced distressed asset sales 70%.**

USAID FROM THE AMERICAN PEOPLE

INNOVATION LAB FOR ASSETS & MARKET ACCESS
BASIS

UC DAVIS
UNIVERSITY OF CALIFORNIA

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

# INSURANCE ENABLES INVESTMENT

In an impact evaluation of an index-based insurance intervention in Mali, cotton farmers:

- Increased area cultivated **55%**
- Increased use of loans for investment **34%**
- Increased use of productive investments **50%**

In Ghana, index an interlinked credit and insurance intervention:

- Women increased their loan applications **15-17%**
- Banks increased loan approval by **32%** when payouts went first to paying the balance of the loan
- **54-60%** of farmers are willing to pay above market prices for insured loans

USAID FROM THE AMERICAN PEOPLE

INNOVATION LAB FOR ASSETS & MARKET ACCESS
BASIS

UCDAVIS UNIVERSITY OF CALIFORNIA

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

**Index-based agricultural insurance has significant potential for welfare impacts.**

**But these benefits are ONLY realized if the insurance product is both high quality and has demonstrated value to the client.**

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

# THE AMA INNOVATION LAB PERSPECTIVE

## CONVENIENCE
(OF EXPLANATION)

## INDEX & CONTRACT QUALITY

USAID
FROM THE AMERICAN PEOPLE

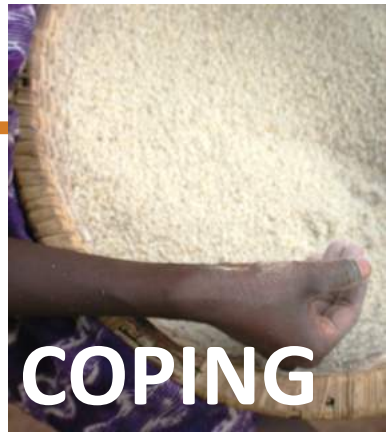
INNOVATION LAB FOR ASSETS & MARKET ACCESS
BASIS

UC DAVIS
UNIVERSITY OF CALIFORNIA

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative







USAID
FROM THE AMERICAN PEOPLE

INNOVATION LAB FOR
ASSETS &
MARKET ACCESS
BASIS

UCDAVIS
UNIVERSITY OF CALIFORNIA

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

# What Could Happen with Low Quality Insurance?

## HARM TO FARMERS

If farmers experience an insurable, catastrophic loss and the contract fails, they could be left **worse off** than if there had been no intervention at all.

"The season was bad. We could not pay back our credit. We were forced to sell our goats and sheep to pay off our debt and the insurance."

"The farmer who has had a bad harvest and does not get insurance payouts still has to pay the insurance fees. This is a double penalty for him."

USAID FROM THE AMERICAN PEOPLE

BASIS INNOVATION LAB FOR ASSETS & MARKET ACCESS

UC DAVIS UNIVERSITY OF CALIFORNIA

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

# What Could Happen with Low Quality Insurance?

"But after the shock last year when we did not receive anything, it really discouraged us."

"Their [the sales agents] attitude shows that they just want to make profit on us.

It is not to help us."

## LONG TERM

This kind of loss of trust in insurance as a tool **could ruin the insurance market** for future high-quality products with high potential for development impact.

USAID
FROM THE AMERICAN PEOPLE

INNOVATION LAB FOR ASSETS & MARKET ACCESS
BASIS

UC DAVIS
UNIVERSITY OF CALIFORNIA

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative


# So, how can we evaluate quality and value of a contract?

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

# PRODUCT VALUE ASSESSMENT TOOL

| Dimension | | Indicator |
|---|---|---|
| Product | 1 | Index reliably predicts farmers' experience |
| | 2 | Covers appropriate activities |
| | 3 | Covers appropriate risks |
| | 4 | Makes a positive contribution to clients' overall risk management capacity |
| Access | 5 | Minimizes unintended gaps in coverage |
| | 6 | Covered farmers are adequately informed of product details |
| | 7 | Staff and sales agents are adequately trained, incentivized, and supervised to inform clients and sell responsibly |
| | 8 | Payment methods are appropriate |
| Cost | 9 | Price is affordable and accessible |
| | 10 | Product delivers adequate value for money |
| Experience | 11 | Benefits are delivered in a timely manner |
| | 12 | Procedure to collect the benefit is simple and easy |
| | 13 | Provider is responsive and proactive about questions, problems, and complaints |
| | 14 | Covered farmers receive evidence of coverage |

USAID FROM THE AMERICAN PEOPLE

INNOVATION LAB FOR ASSETS & MARKET ACCESS
BASIS

UC DAVIS
UNIVERSITY OF CALIFORNIA

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

# SAFE MINIMUM STANDARDS FOR INDEX INSURANCE

- It is for these reasons that a test for Safe Minimum Standards for insurance quality is the first indicator in the Product Value Assessment Tool (PVAT).
- Using ground-truthing data that should be collected for contract design, standard economic concepts allow definition of a “Safe Minimum Standard” for index insurance quality.
- We have a plug and play spreadsheet that can be used to calculate whether a product will meet these minimum quality standards.
- Two things reduce the quality of an index insurance contract:
  1. The probability that an insurance failure happens
  2. The “value” of money when failure happens (Money is worth more when I need it most)

USAID FROM THE AMERICAN PEOPLE

INNOVATION LAB FOR ASSETS & MARKET ACCESS
BASIS

UC DAVIS
UNIVERSITY OF CALIFORNIA

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

# THE CHALLENGE OF HIDDEN TRAITS

- When you compare index insurance to the hybrid maize seeds, there are many similarities in the product, but not in how it is approached with regard to quality – with both, the consumer cannot tell quality prior to purchase, just by looking at the product.
- As a result, this can create an incentive to product low-quality products – it's cheaper than creating high quality products.
- With the hybrid maize seed sector, there are defined and enforced quality standards. That is not the case for agricultural index insurance.


USAID FROM THE AMERICAN PEOPLE

INNOVATION LAB FOR ASSETS & MARKET ACCESS
BASIS

UC DAVIS
UNIVERSITY OF CALIFORNIA

# SAFE MINIMUM STANDARDS

- Standard economic theory can aggregate these two elements into a single "reservation price" measure defined as the maximum amount an individual could pay for a contract without making herself worse off
- The Safe Minimum Standard is thus:
  **Reservation Price > Market Price for a moderately risk averse person**
- A note on subsidies:
  - Unsubsidized Insurance: If the market price exceeds the reservation price, then the insurance beneficiary would be better off keeping the premium and having no insurance, rather then paying the premium and buying insurance.
  - Subsidized Insurance: If the market price exceeds the reservation price, then the subsidy funds may be better spent on other interventions.

# HOW TO MEET THESE STANDARDS

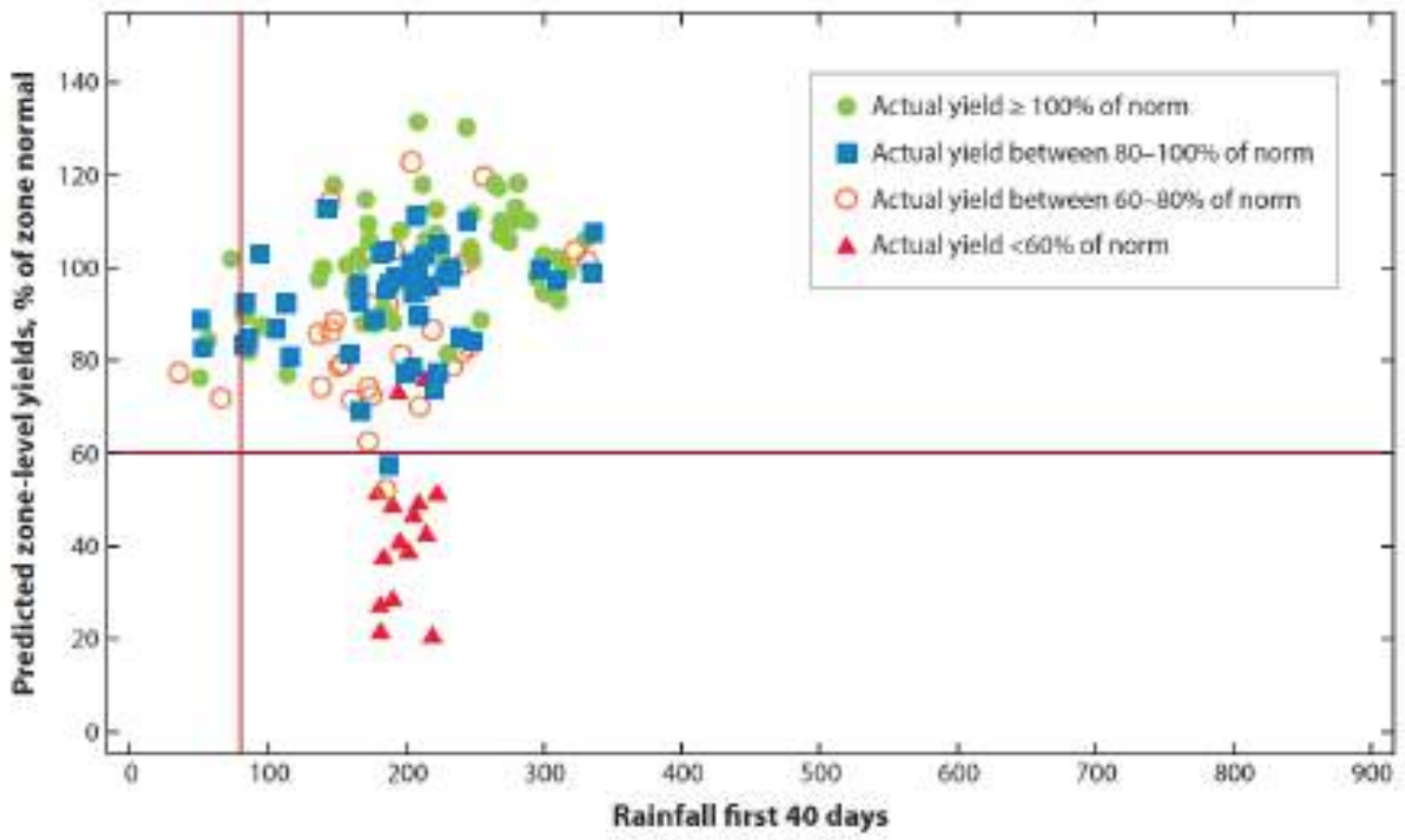
- Sources of uninsured risk are two:
  - Design risk occurs when an insurance index is poorly correlated with average losses in the insurance zone covered by the index; and,
  - Idiosyncratic risk occurs when the individual's losses differ from the average losses in her insurance zone.
- Design risk can be minimized by:

  Improved index design

  Fail-safe audit rules to protect farmers when primary index fails
- Idiosyncratic risk can be minimized by downscaling contract (subject to moral hazard constraints)

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

# WHAT MIGHT THAT LOOK LIKE?




USAID FROM THE AMERICAN PEOPLE

INNOVATION LAB FOR ASSETS & MARKET ACCESS
BASIS

UC DAVIS
UNIVERSITY OF CALIFORNIA

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

# HOW AN AUDIT RULE WORKS

## HOW AN AUDIT RULE ENSURES THAT INDEX INSURANCE CONTRACTS PAY OUT WHEN THEY SHOULD

A satellite-based index for insurance is used to estimate average crop losses in an area.


With an audit rule, if enough farmers register complaints, their insurance company is required to conduct an area-yield audit to verify the index is working.

There is always the risk these estimates will not trigger payments when they should.

If the audit shows that the index failed to recognize insurable losses, farmers receive the payments they are due.

USAID FROM THE AMERICAN PEOPLE

INNOVATION LAB FOR ASSETS & MARKET ACCESS
BASIS

UC DAVIS
UNIVERSITY OF CALIFORNIA

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

# SAFE MINIMUM STANDARDS

- At a **MINIMUM**, we should make sure we are not making difficult situations worse.
- To assess safe minimum standards you must ask key quality questions, such as: how often and how much a contract pays out, and the probability it will fail (and when).
- If a contract consistently fail (as was noted Tuesday), it is little more than a lottery ticket.

USAID FROM THE AMERICAN PEOPLE

INNOVATION LAB FOR ASSETS & MARKET ACCESS
BASIS

UC DAVIS
UNIVERSITY OF CALIFORNIA

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

# SUMMARY OF KEY POINTS

- Index insurance can't solve all our problems, but it can enable smallholder agriculturalists to invest more into growth opportunities, and to avoid costly coping strategies when a shock occurs.

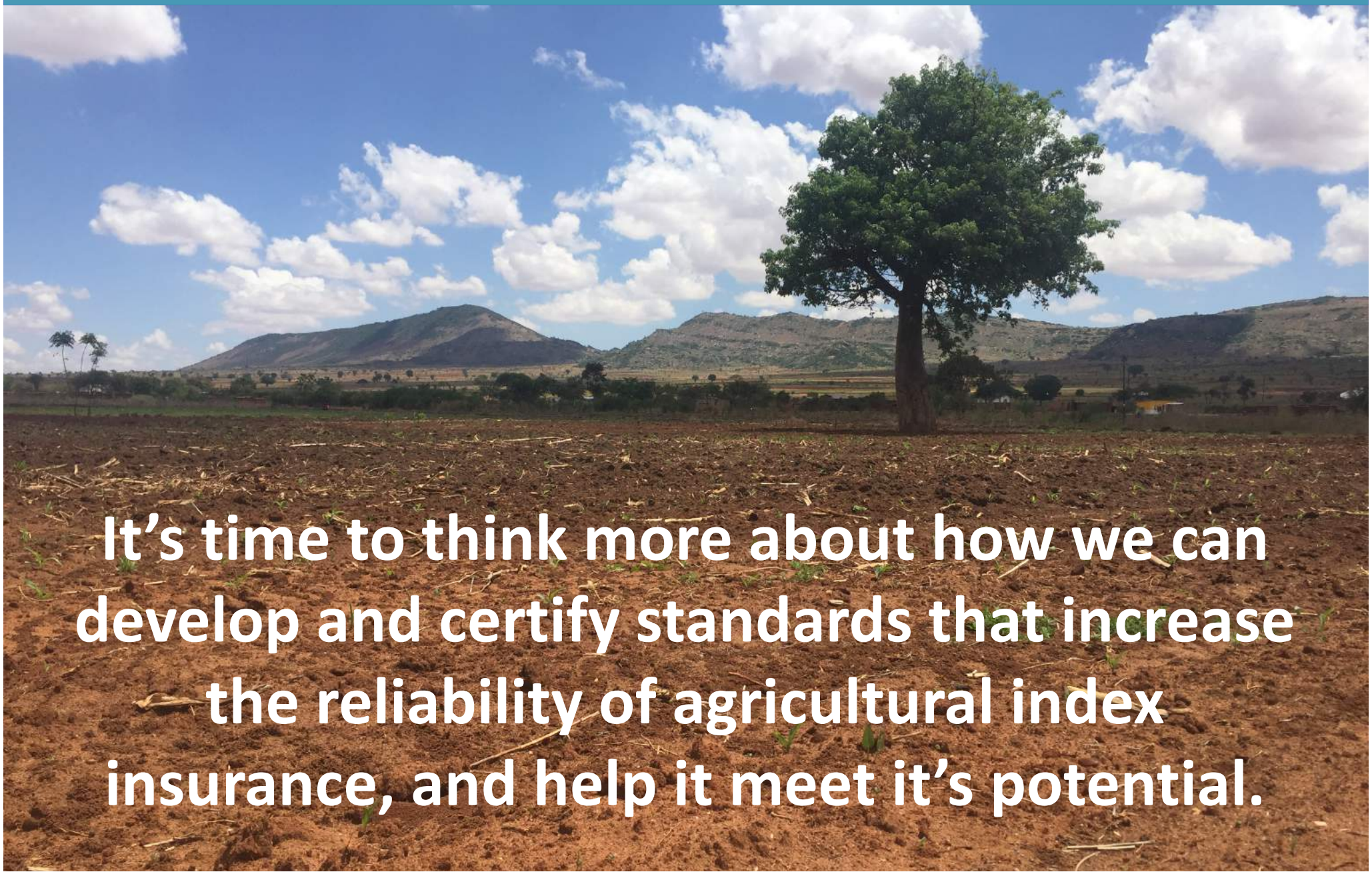
- More work needs to be done to ensure that the contracts brought to market are **quality** and **well-implemented** so they can actually protect farmers as intended and achieve development impact.

USAID
FROM THE AMERICAN PEOPLE

INNOVATION LAB FOR ASSETS & MARKET ACCESS
BASIS

UC DAVIS
UNIVERSITY OF CALIFORNIA

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative



It's time to think more about how we can develop and certify standards that increase the reliability of agricultural index insurance, and help it meet it's potential.

# FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

www.feedthefuture.gov

USAID
FROM THE AMERICAN PEOPLE

INNOVATION LAB FOR
ASSETS &
MARKET ACCESS
BASIS

UC DAVIS
UNIVERSITY OF CALIFORNIA