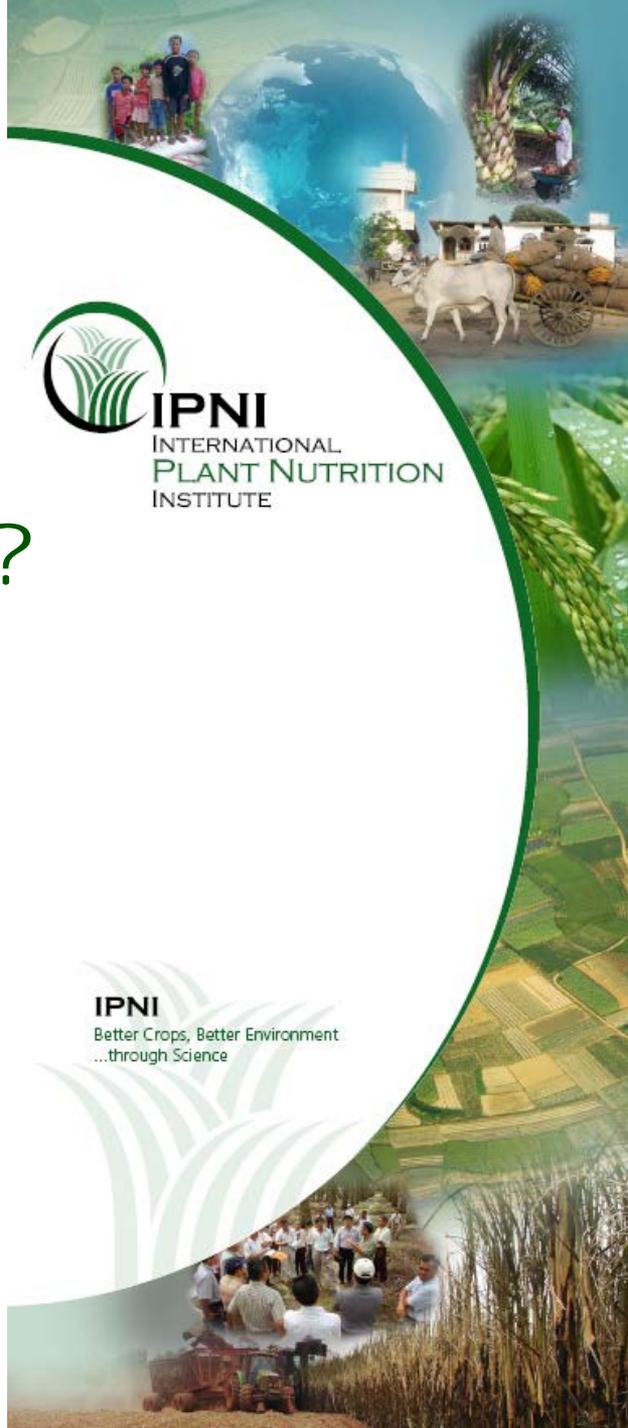


# Fertilizer Best Management Guides

## ...Are We Moving Forward?

**Rob Mikkelsen**

**FREP Conference  
Modesto, October 29 & 30, 2014**



# BEST Management Practices of Nutrient Stewardship?



# BEST Management Practices of Nutrient Stewardship

...it is not enough that something is good

Other choices are better,  
and still others are best

Even though a particular  
choice is more costly, its  
greater value may make it the  
best choice of all



# Disciplinary practice

‘The chains of habit are generally too small to be felt until they are too strong to be broken’.

Dr Samuel Johnson  
1709 - 1784



# Monocularism: the gaze of the Cyclops

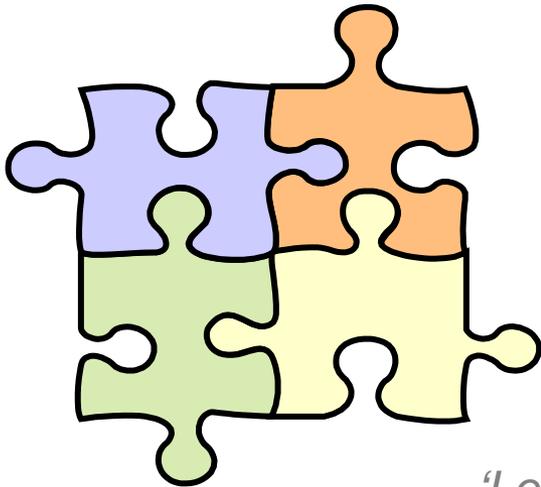


**Changing the status quo  
of nutrient management**

# Threshold Concept



**‘a unit of thought or element of knowledge that allows us to organize experience’**



Janet Gail Donald (2001)

*‘Learning to Think: Disciplinary Perspectives’*

## Threshold concepts

provide a new  
perspective & lens to  
focus on critical, and  
perhaps previously  
neglected, aspects of  
practice



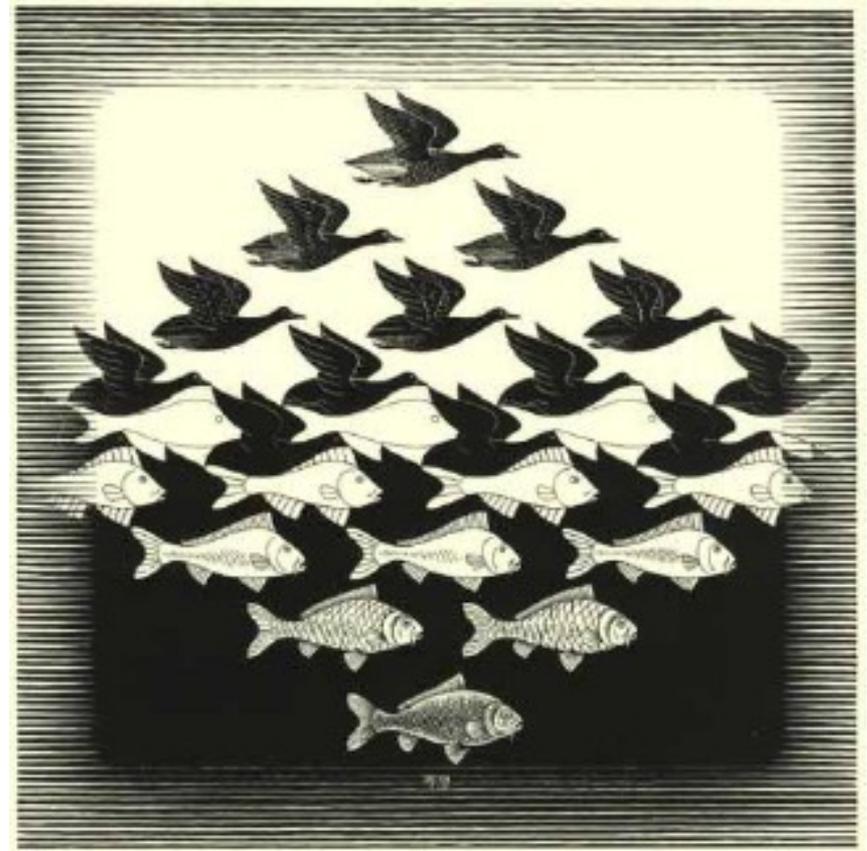
...a lens through  
which to identify  
'stuck places'



## ... a form of transformational learning

*'Transformative learning involves experiencing a deep, structural shift in the basic premises of thought, feelings, and actions. It is a shift of consciousness that dramatically and irreversibly alters our way of being in the world.'*

O'Sullivan et al, 2002, p. 11



What are some threshold concepts for nutrient best management practices?



# The power of CCA's

Where do farmers get their information?





Please indicate how influential the following groups and individuals are when you make decisions about agricultural practices and strategies. (16 options)



...the survey asked about the primary decision influencer for the decision maker. **Overwhelmingly, this was the "fertilizer dealer"** (Mike Schmitt, Univ Minn)



Linda Prokopy, Purdue

**American Farmland Trust** (Steve Shaffer) polled and held focus groups with specialty crop growers, asking them what would make it more likely for them to try practices such as micro-drip, alternate furrow irrigation, and timed application and precise placement of nitrogen fertilizers.

The results are contained in a American Farmland Trust report:

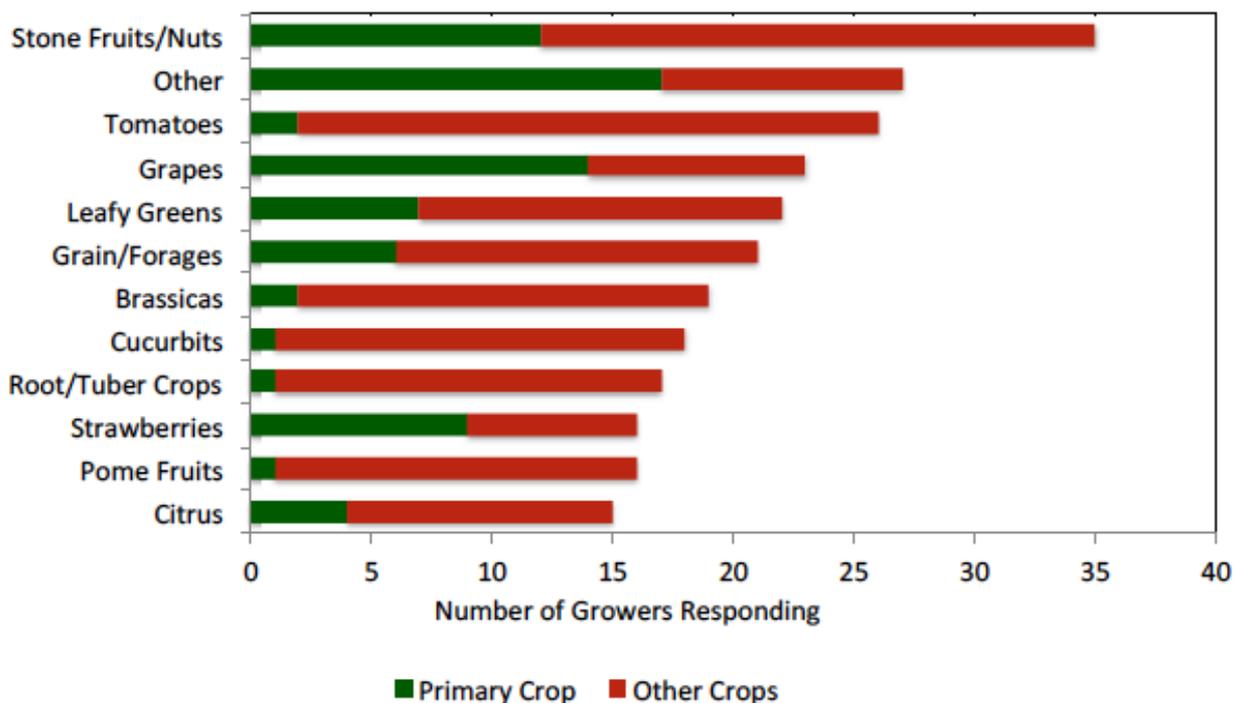
***Encouraging California Specialty Crops  
Growers to Adopt Environmentally Beneficial  
Management Practices for Efficient Irrigation  
and Nutrient Management***

April 2013

### Examples of BMP for Irrigation and Nutrient Management

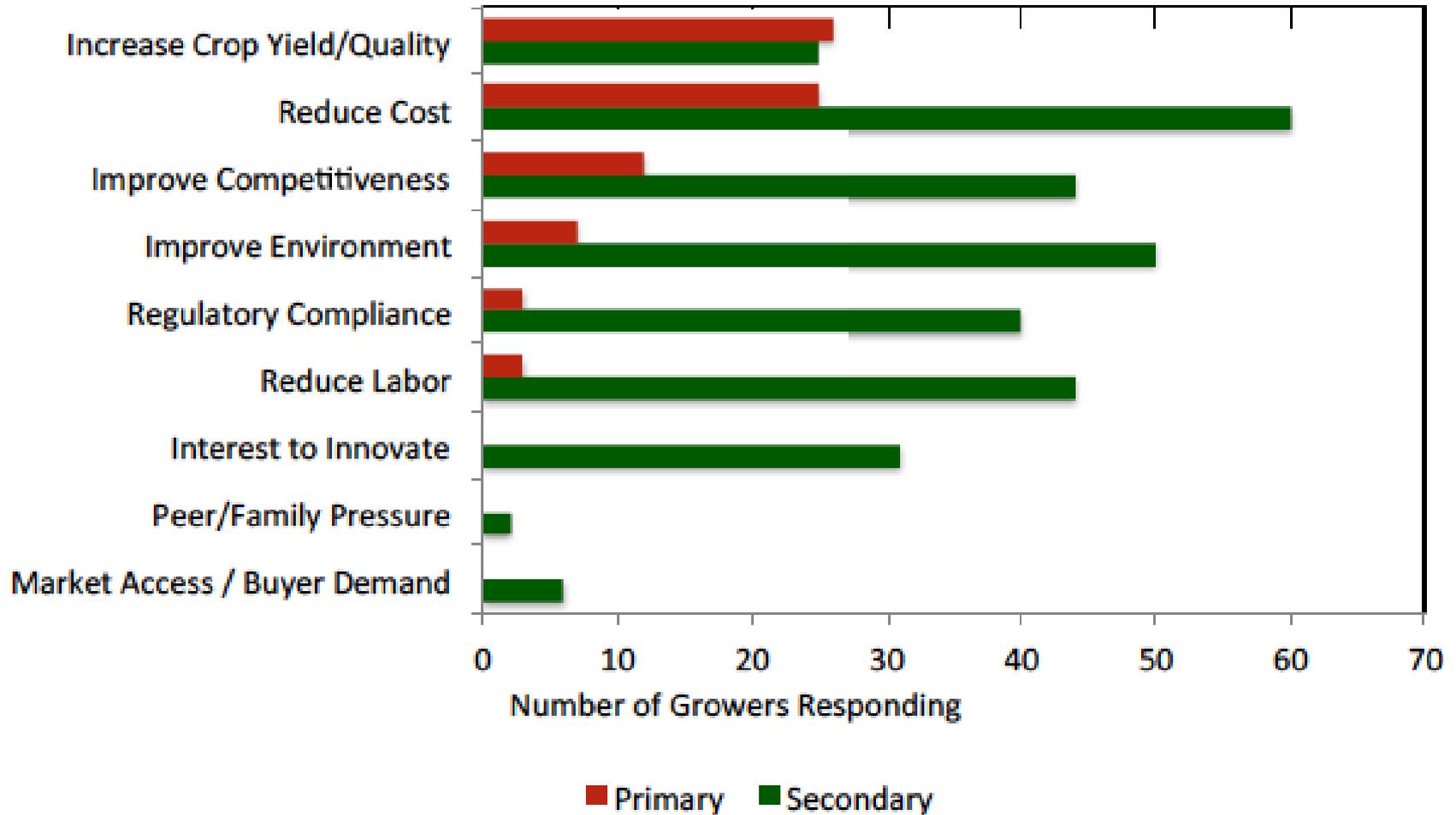
<i>Irrigation (Efficient Water Use)</i>	<i>Nutrients (Pollution Prevention)</i>
Drip and micro irrigation systems	Nutrient management planning
Irrigation scheduling	Soil testing
Soil moisture monitoring	Plant tissue testing
Crop evapotranspiration monitoring	Precise placement of fertilizer application
Tail water return systems	Precise timing of fertilizer application
Drainage water return systems	Timed release fertilizers
Alternate furrow irrigation	Fertigation
Conservation tillage	Soil amendments
Cover crops	Cover crops

### Crops Grown

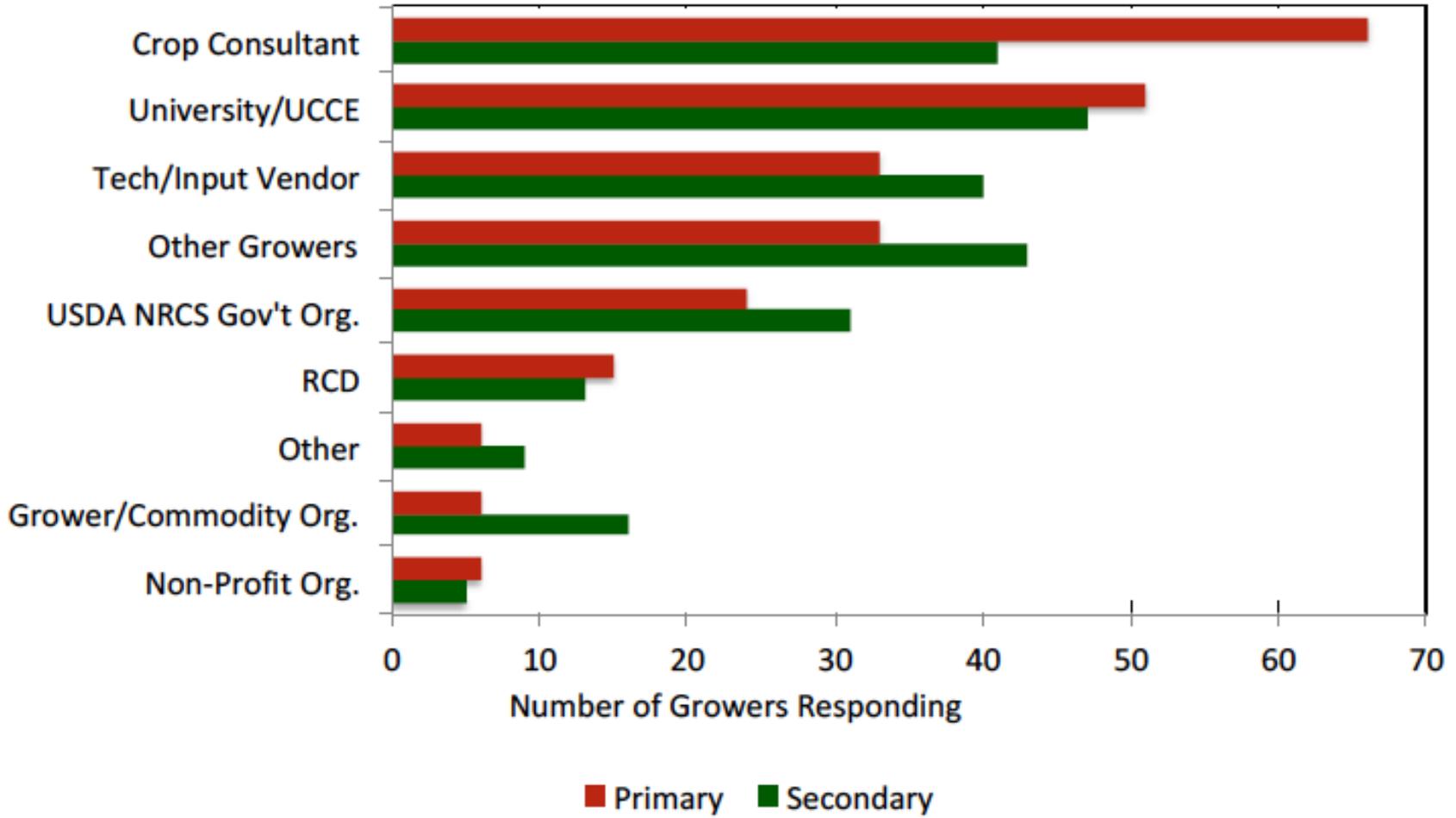


*Encouraging California Specialty Crops Growers to Adopt Environmentally Beneficial Management Practices for Efficient Irrigation and Nutrient Management*

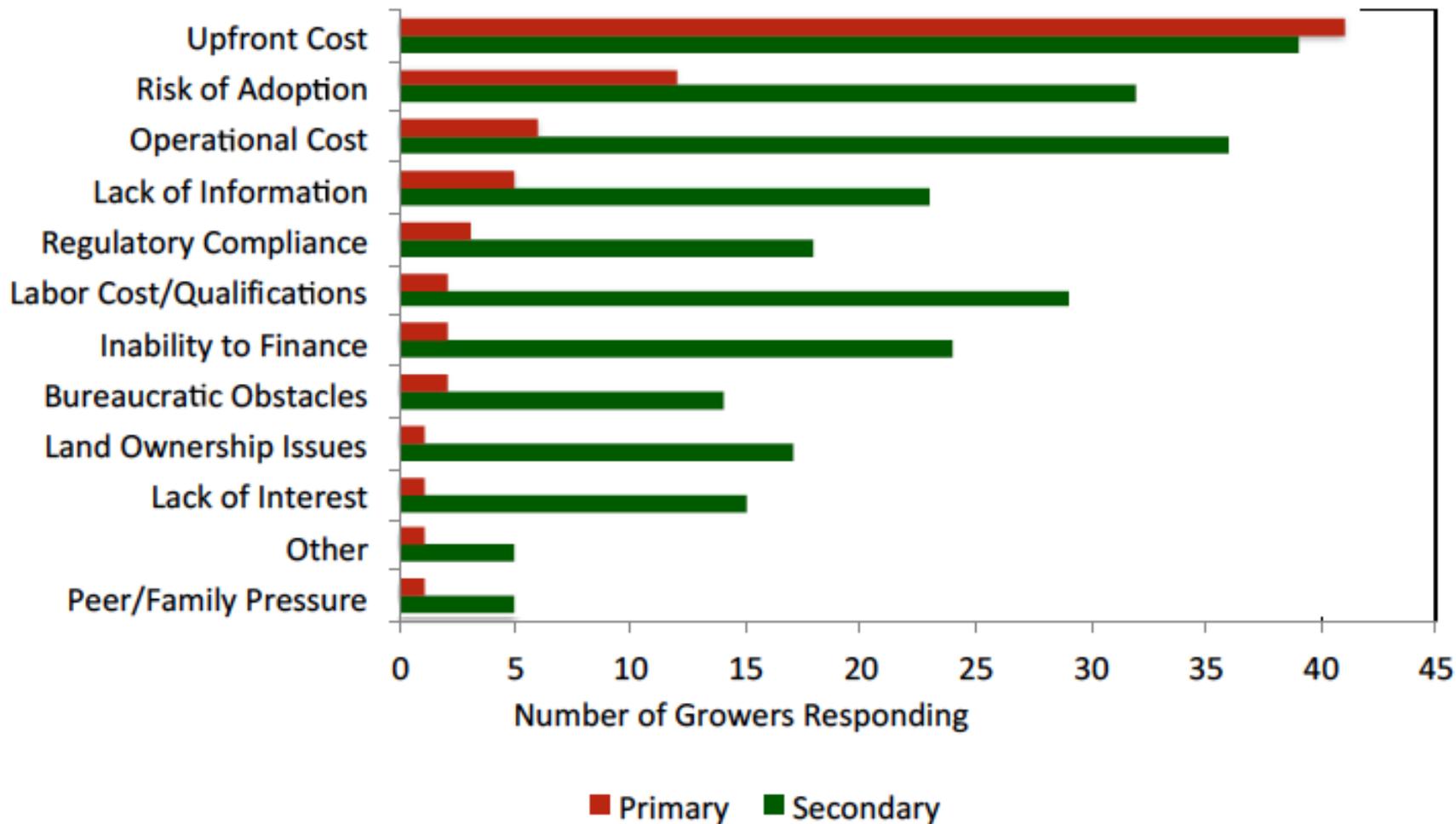
## Motivation for Adoption of BMP



### Source of BMP Technical Assistance



## Barriers to BMP Adoption



# Information:

Expand the capacity of Cooperative Extension

Increasing role for independent crop consultants, such as CCA's  
(esp. as new environ. regulations and reporting requirements emerge)

Expansion of NRCS technical assistance

Strengthen and expand Resource Conserv. Districts where active

Value the commodity organizations

Better methods to share information among peers

# **The power of CCA's**

Where do farmers get their information?

What do CCA's need to know?

## Educational Opportunities

**FREP Resources:**

**Univ. Calif. Resources:**

**WPHA Resources:**

You can lead a  
human to  
knowledge but  
you can't make  
him think.



Yes, we still have a lot to learn

but,

CCA's have the ability to help control the future of  
California nutrient use

First get educated

... then spread the word on nutrient stewardship

