Economic Update

Economics of Almond Production: Panel Participants

Bill Harp, An Almond Grower, Bakersfield, CA

Cornelius L. (Corny) Gallagher, SVP, Food, Ag and Wine Executive, Bank of America Merrill Lynch, Sacramento, CA

John Duarte, President of Duarte Nurseries, Modesto, CA

Joshua (Josh) Cheney, Vice President, Valley Corporate Group, American AgCredit, Stockton, CA

Economic Policy and Trends

Corny Gallagher
SVP – Food, Ag and Wine Executive

Almond Conference
Economic Policy and Trends

December 11, 2012

Corny Gallagher
SVP – Food, Ag and Wine
Executive
Global Commercial Banking

CALIFORNIA's Economic Policy - Trends

- Water…Adequate and reliable supply of quality WATER for PEOPLE, FOOD PRODUCTION AND ENVIRONMENT.
- Land Use…Preservation of prime farm land to produce almonds.
- Regulations…Regulatory steamlining that enables continued food production and processing.
- Rights to farm and process food products.
- Labor…Adequate supply of on farm and food processing labor.
- Transportation and ports to export almonds.
- Research in health, nutrition and food products.
- Human capital to fill positions with knowledge and expertise.
- Family equity transfer and estate taxes.
- Global financial facts, GDP, Dollar value, income growth.

FOOD FORESIGHT

FOUNDED 1993

A collaboration of Nuffer, Smith, Tucker Inc. and the California Institute of Food and Agricultural Research, University of California, Davis

Food Foresight Priority Trends 2012

1. Farmers' latitude to operate under intense scrutiny
2. New developments in science poised to reshape the food-health nexus
3. New food chain emerging
4. 'Big' data meets production agriculture
5. Greater uncertainty, less predictability and the need to adapt



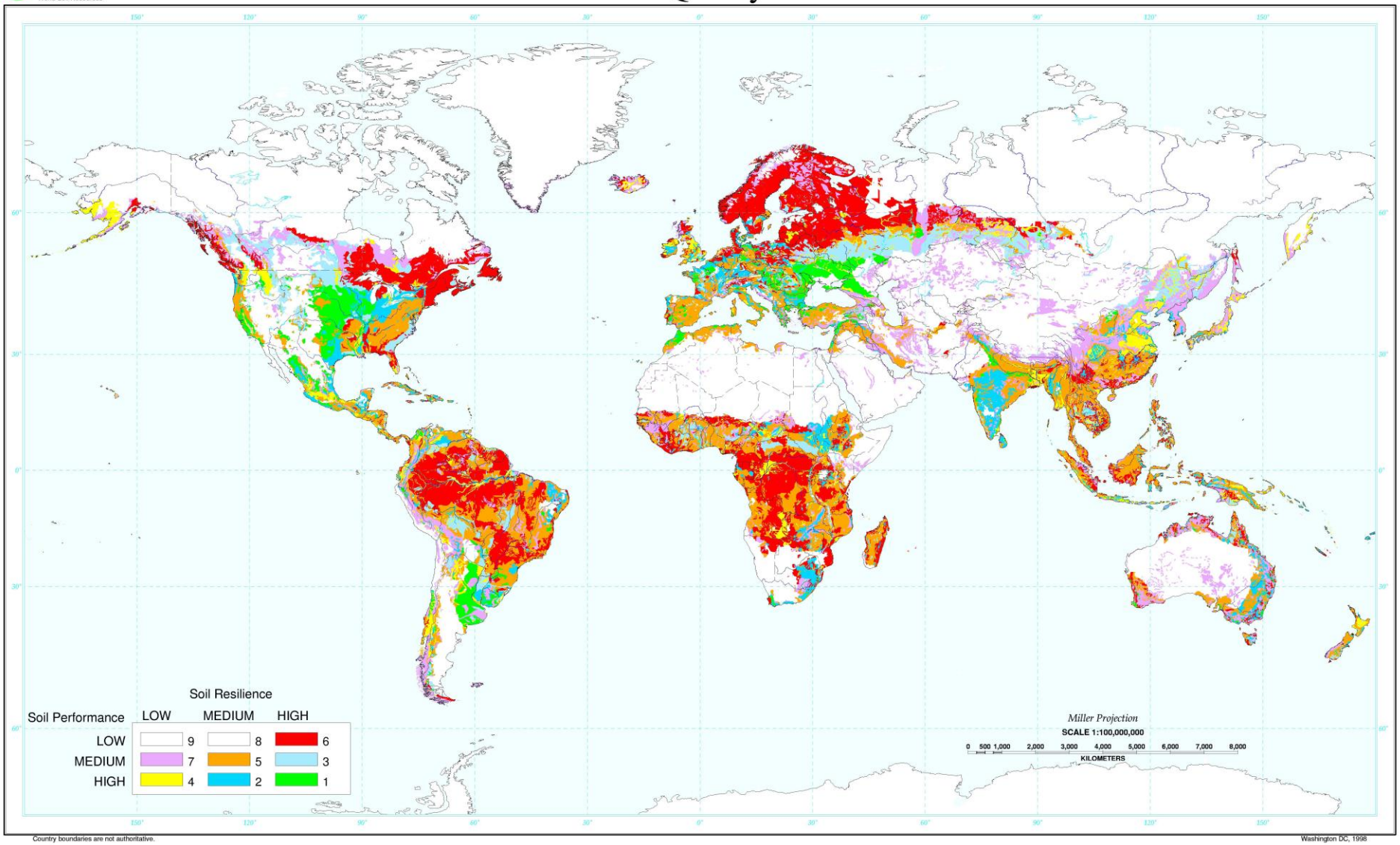
nuffer smith tucker public relations

UCDAVIS

The California Institute of Food and Agricultural Research

U.S. Dept. of Agriculture
Natural Resources Conservation Service
Soil Survey Division
World Soil Resources

Inherent Land Quality Assessment

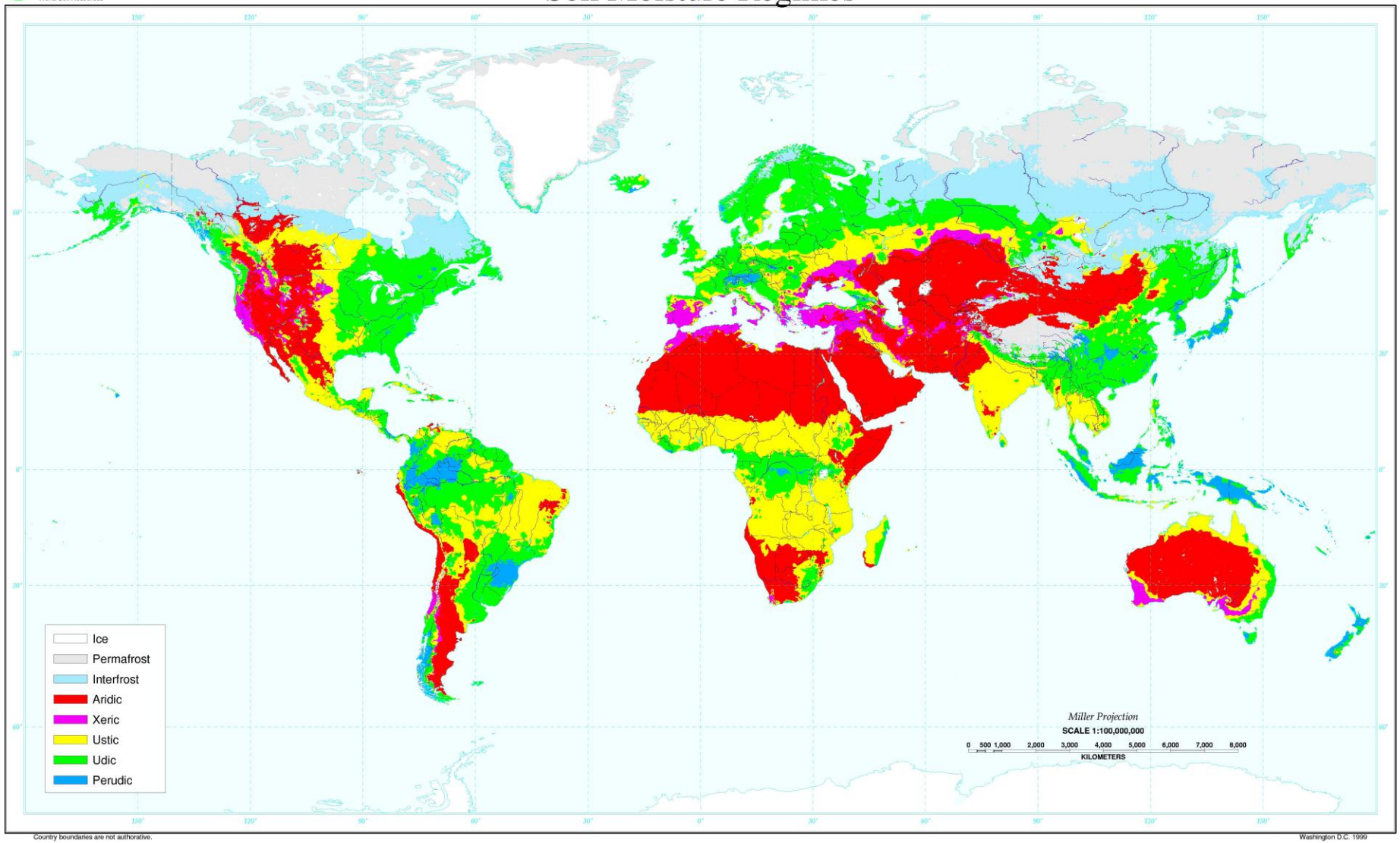


Country boundaries are not authoritative.

Washington DC, 1998

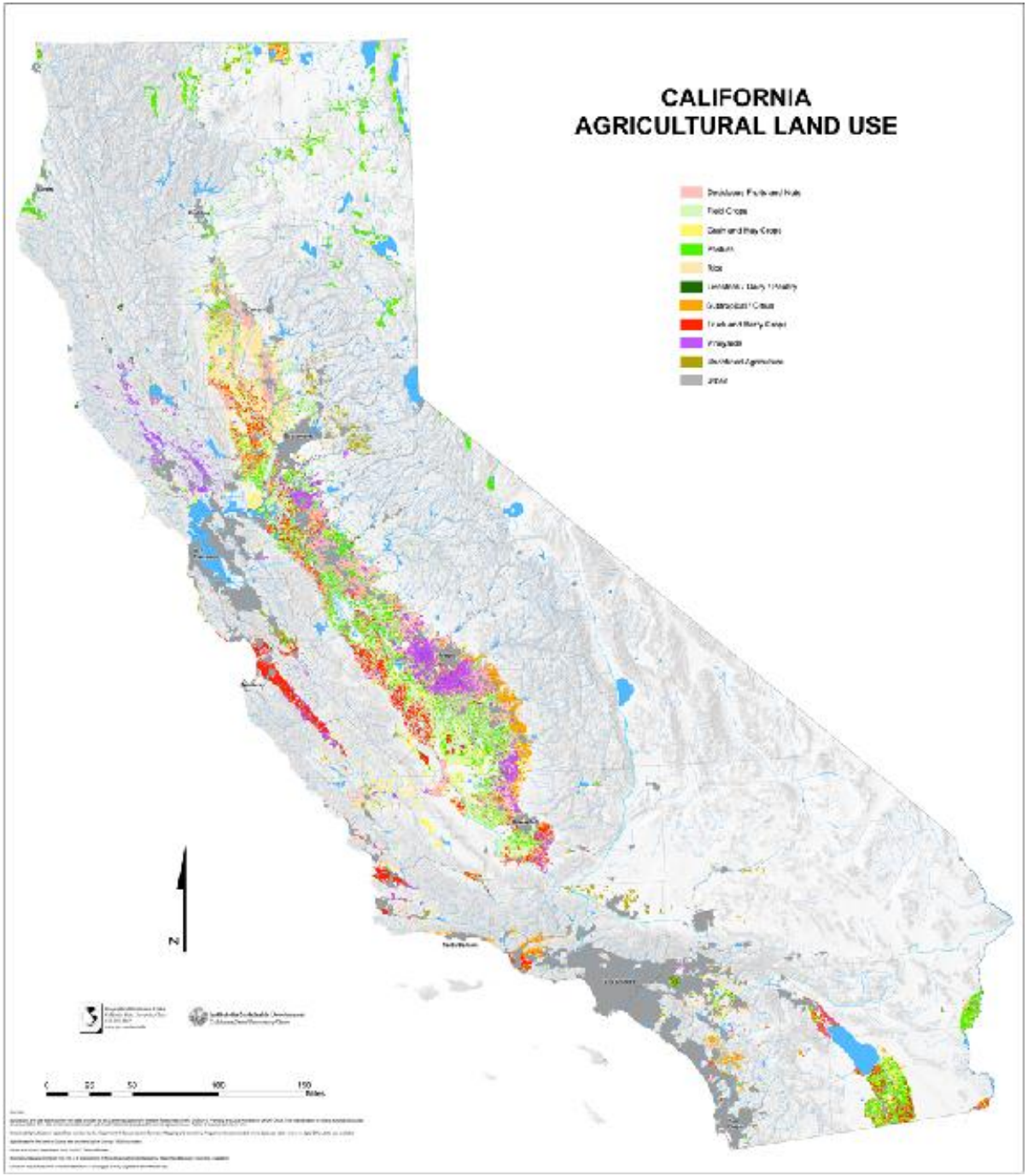
U.S. Dept. of Agriculture
Natural Resources Conservation Service
Soil Survey Division
World Soil Resources

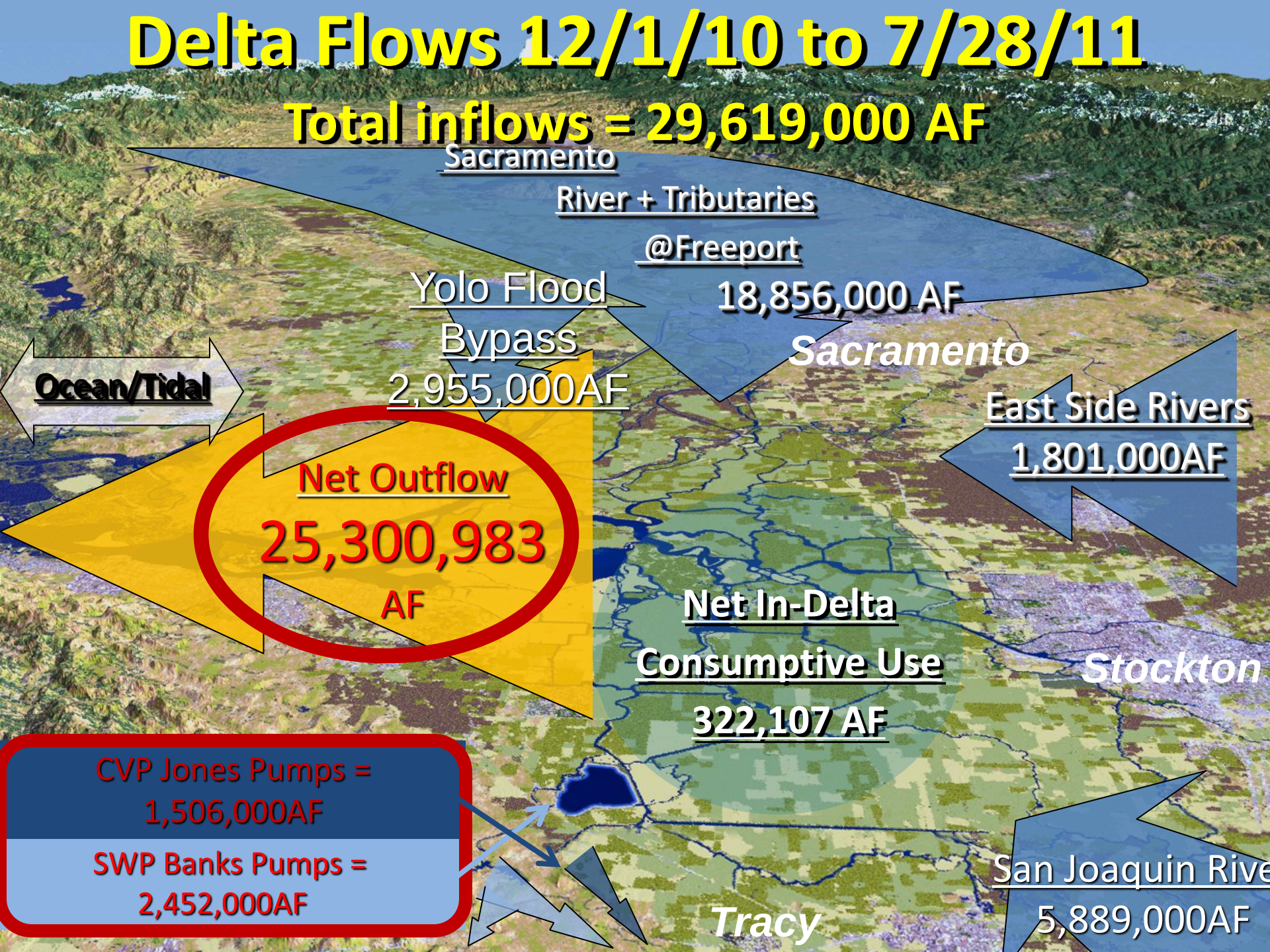
Soil Moisture Regimes



Country boundaries are not authoritative.

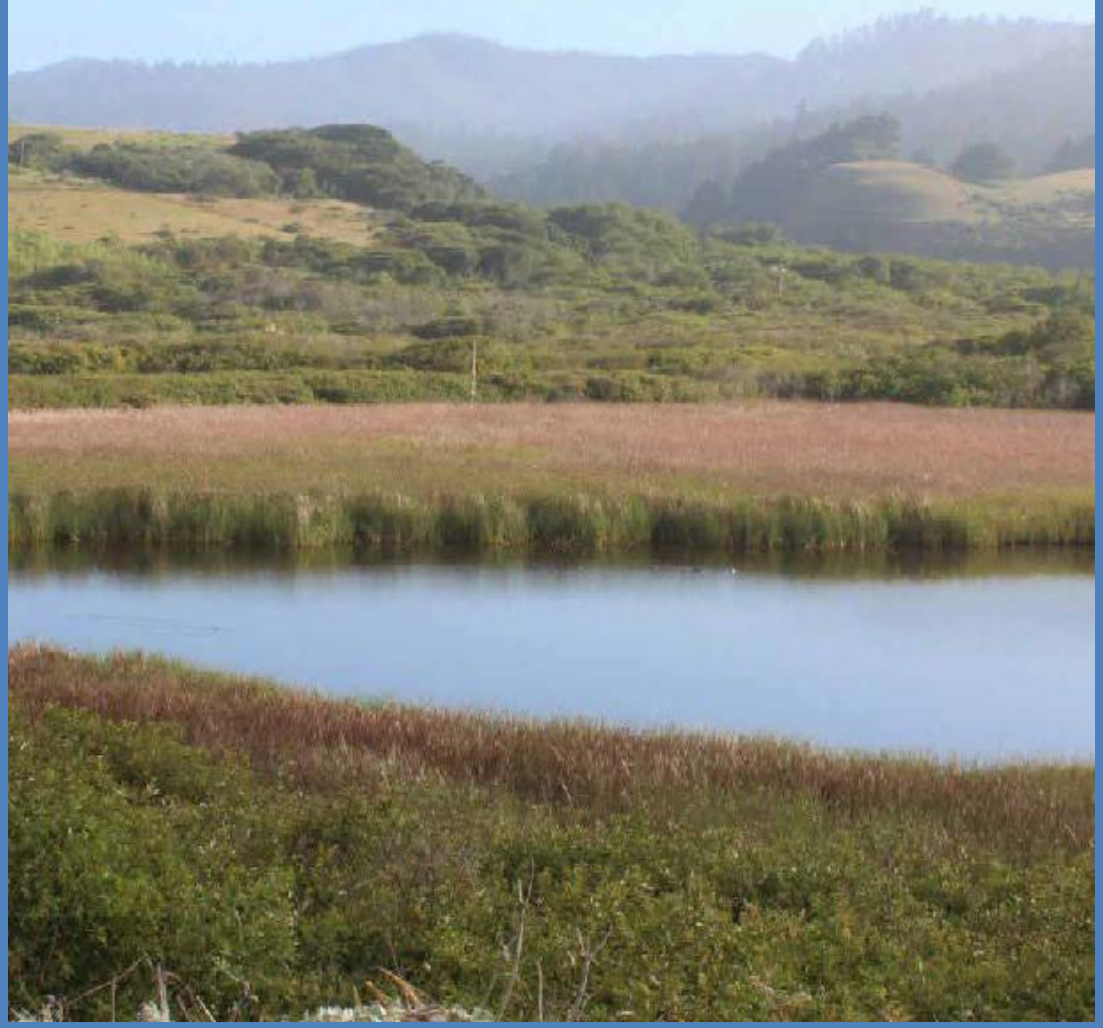
Washington D.C. 1999

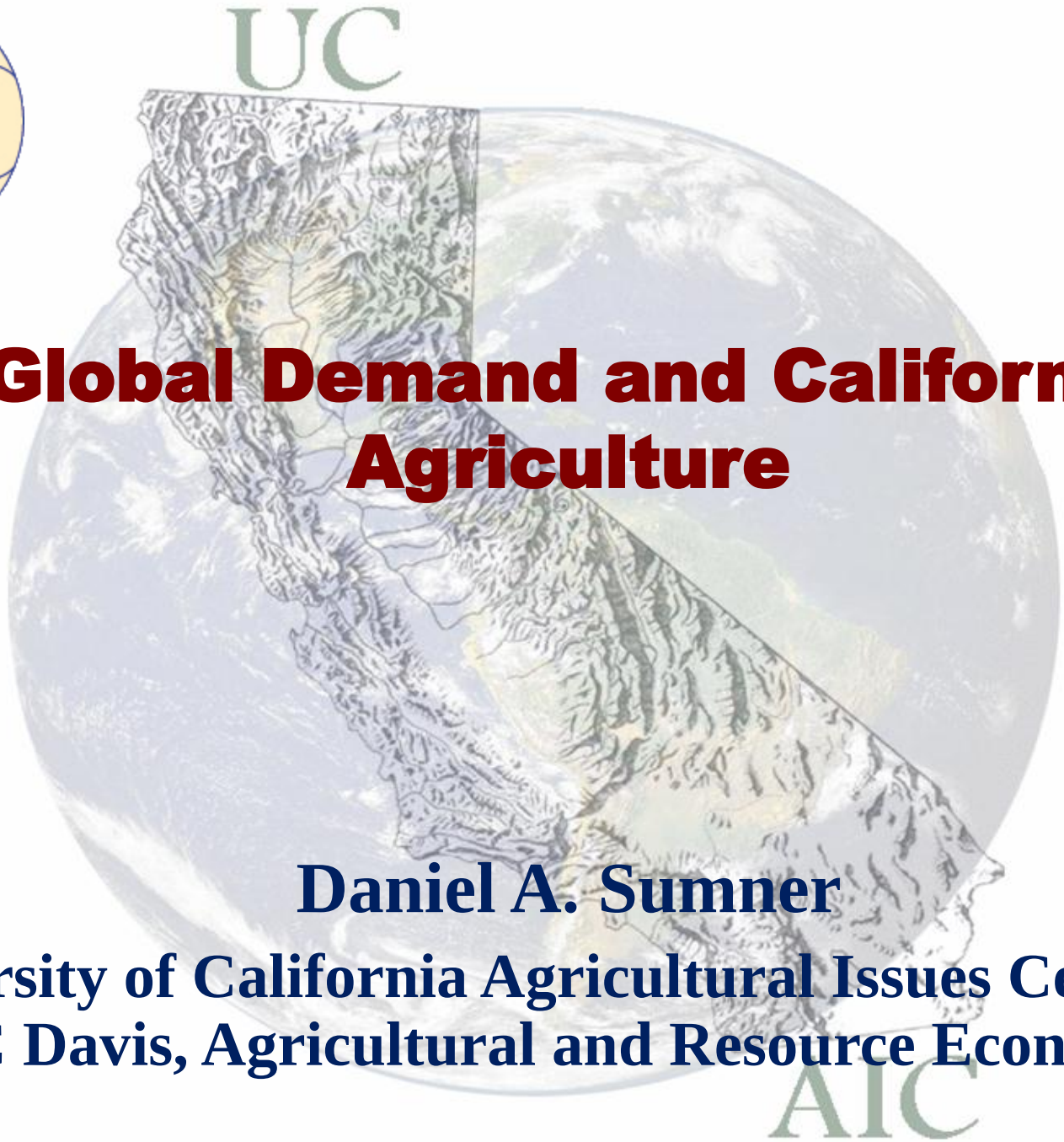

CALIFORNIA
AGRICULTURAL LAND USE
Deciduous Fruits and Nuts
Field Crops
Grain and Hay Crops
Pasture
Rice
Truck and Berry Crops
Vineyards
Urban
N
0
50
100
150
Miles


Delta Flows 12/1/10 to 7/28/11
Total inflows = 29,619,000 AF
Sacramento River + Tributaries @Freeport
18,856,000 AF
Yolo Flood Bypass
2,955,000AF
Sacramento
Ocean/Tidal
East Side Rivers
1,801,000AF
Net Outflow
25,300,983
AF
Net In-Delta Consumptive Use
322,107 AF
Stockton
CVP Jones Pumps =
1,506,000AF
SWP Banks Pumps =
2,452,000AF
Tracy
San Joaquin Rive
5,889,000AF

Agriculture and the Water Retention Landscape: A New Vision for the Way We Store Water in California

California Roundtable on Water and Food Supply | November2012





Global Demand and California Agriculture

Daniel A. Sumner

University of California Agricultural Issues Center and UC Davis, Agricultural and Resource Economics

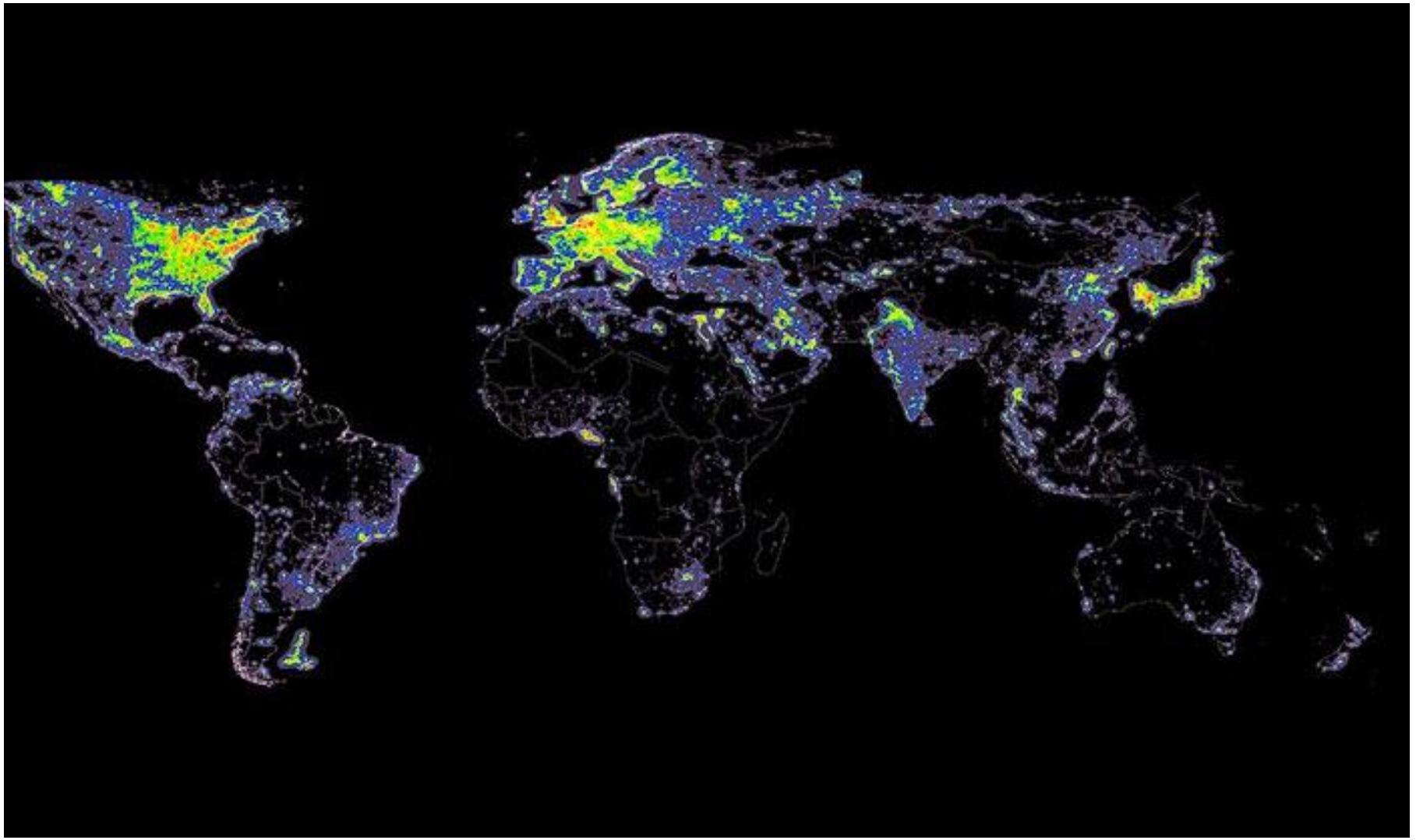
Global markets for farm commodities have exhibited strong long-term trends and have several drivers

- **Demand for farm commodities has been growing strongly for centuries because of populations and per capita income growth.**
- **Continued demand growth for protein commodities derives primarily from increases in population and income.**
- **Strong demand growth is a "good news" story. It means that incomes of the world's poor will continue to expand at rapid rates!**

Global markets for farm commodities have exhibited strong long-term trends and have several drivers

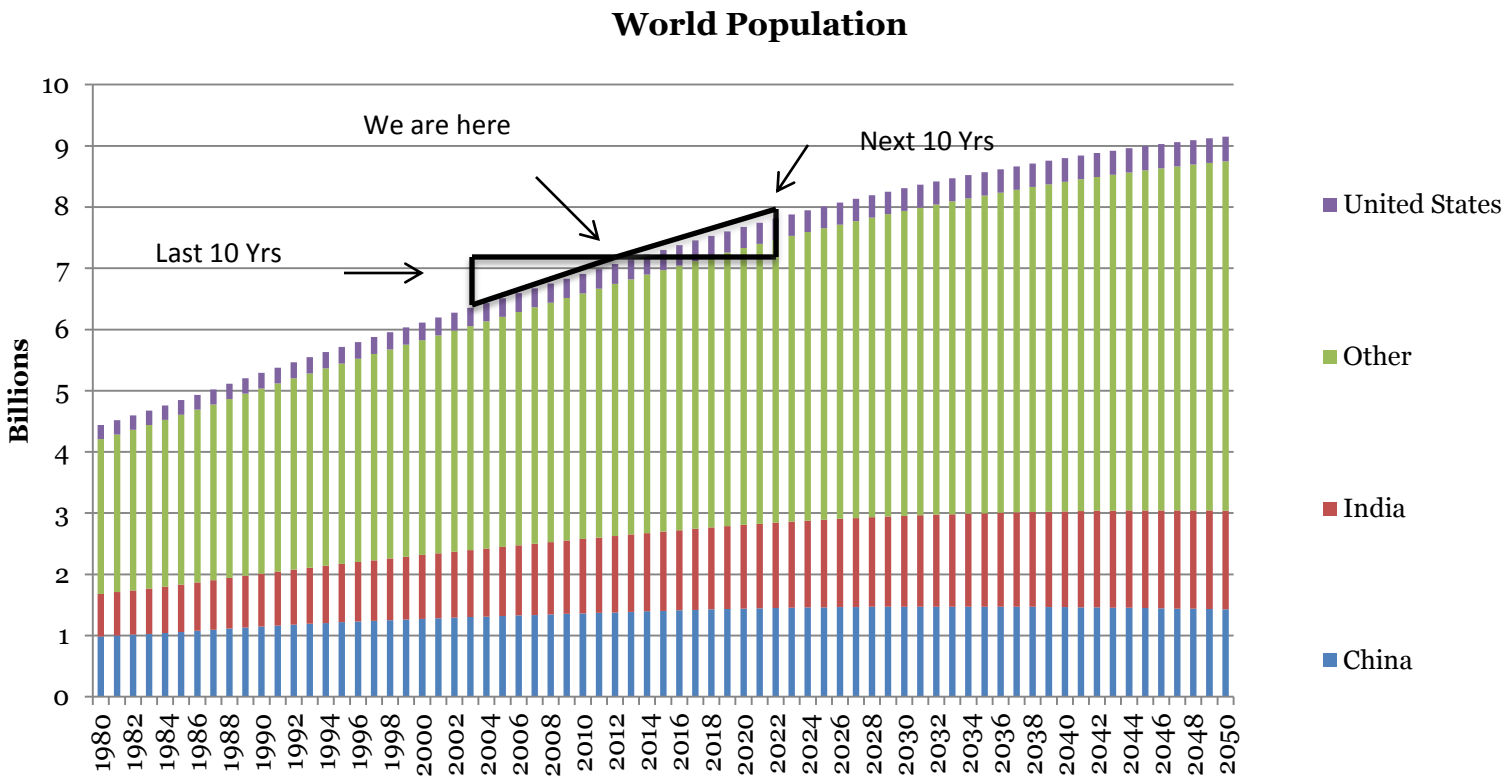
- **Supply growth derives mainly from:**
  - **Opening new land area for crop and livestock production,**
  - **Additions to availability of irrigation water**
  - **Increased availability of inputs such as improved seed, fertilizer, pesticides and equipment**
  - **Improved handling and reduced losses off the farm**
  - **New and newly adapted and adopted technology and practices**

PEOPLE AND ENERGY USE



Macro Drivers - Population

While Arable Land is relatively fixed, World Population is not - it continues to grow

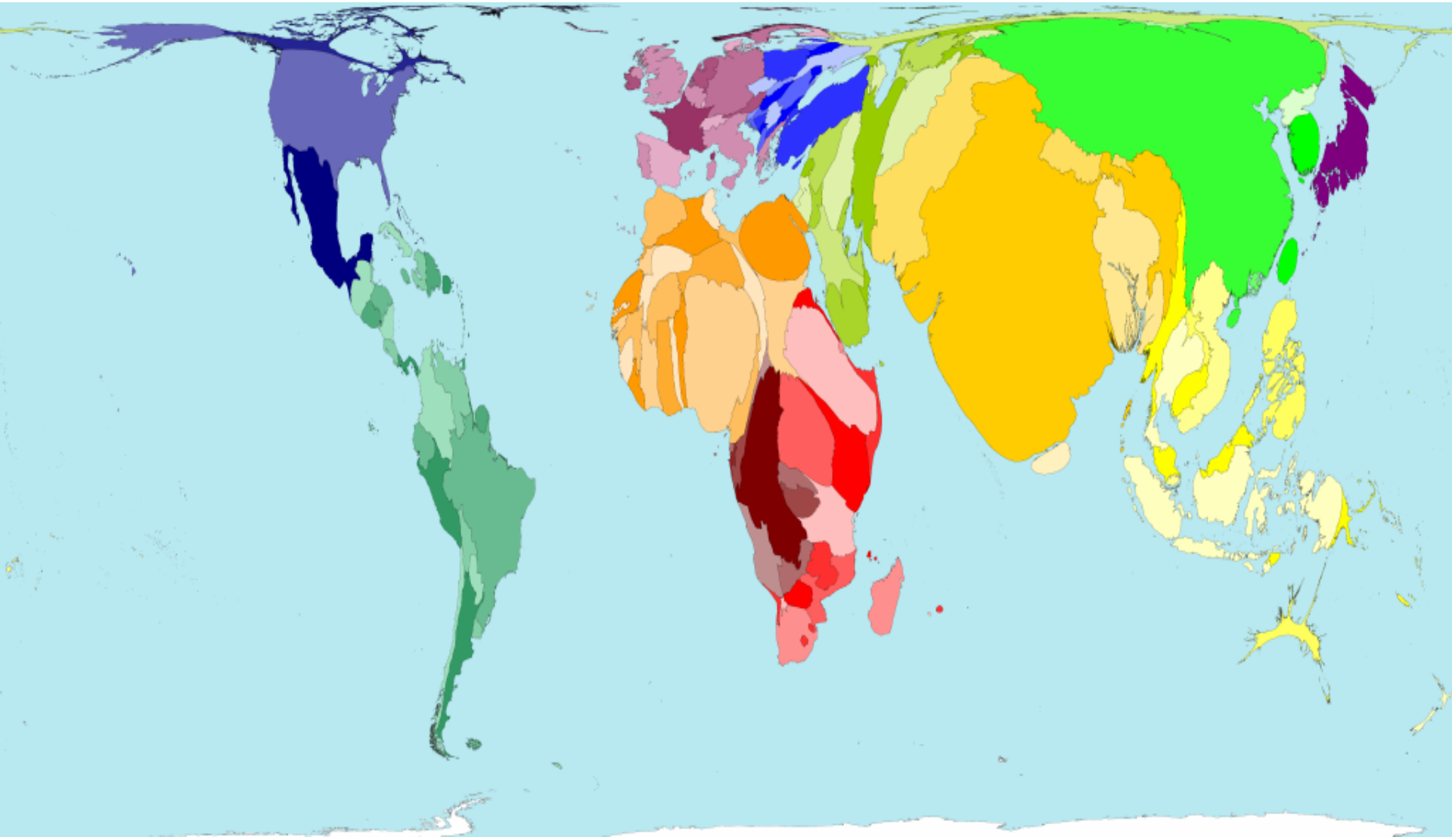


Data as of 02/12

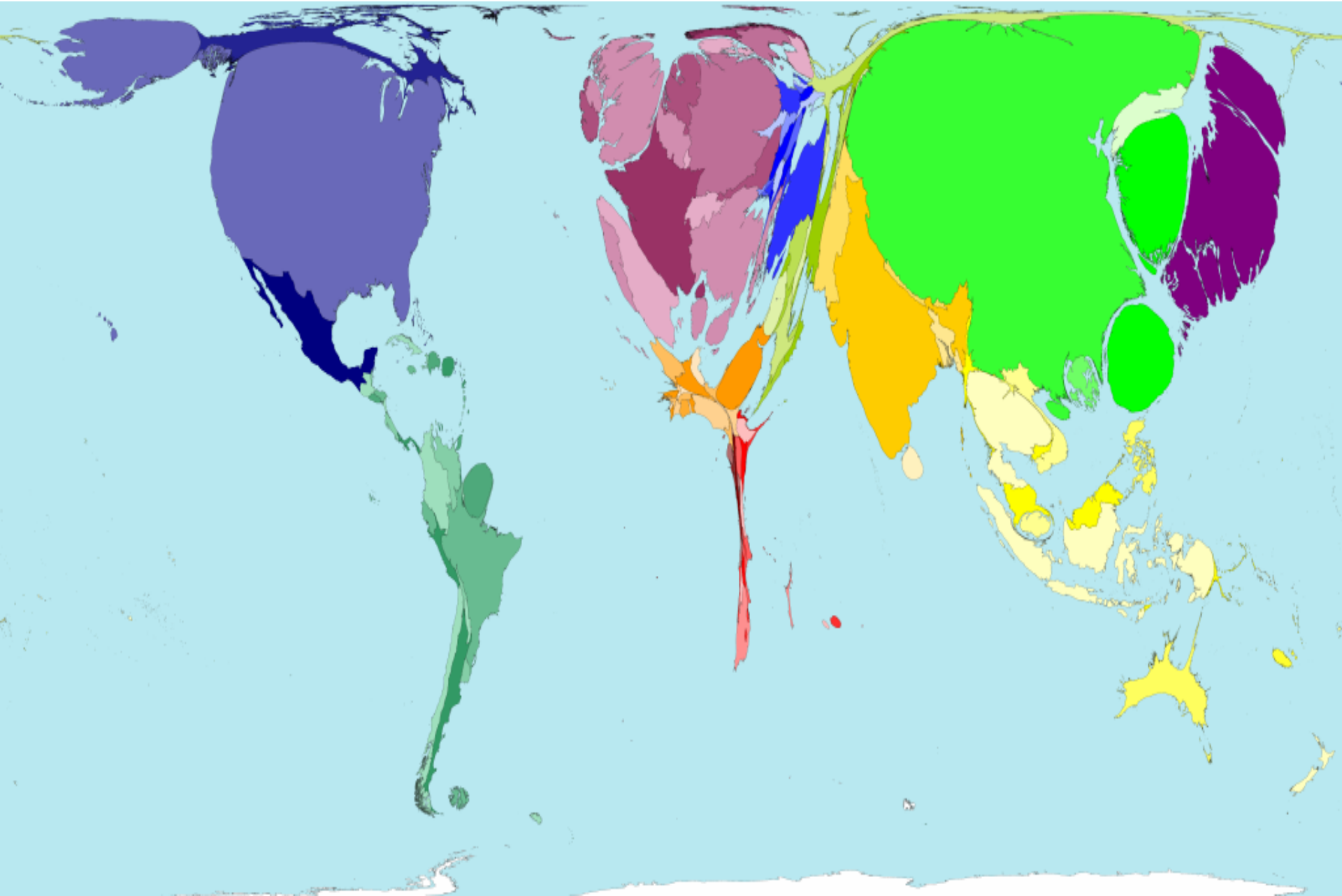
Source: UN FAOSTATS

• United Nations (UN) Food and Agriculture Organization Statistics (FAOSTATS)

World map weighted by estimated population in 2050



World map weighted by estimated GDP in 2015



Developing countries want protein

California Almonds

have a strategic advantage

in producing portable protein.

Nutrition Facts

Serving Size 1 ounce, about 22 nuts (28g)
Servings Per Container

Amount Per Serving

Calories 170	Calories from Fat 130
	% Daily Value*
Total Fat 15g	**23%**
Saturated Fat 1g	**5%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 0mg	**0%**
Total Carbohydrate 5g	**2%**
Dietary Fiber 3g	**12%**
Sugars 1g	
Protein 6g	

Vitamin A 0%	• Vitamin C 0%
Calcium 8%	• Iron 8%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300 mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4


Creating fertile ground
for agribusiness growth.

California Almond Industry

Planting Trends, Farming Systems & Alternative crops

John Duarte

President, Duarte Nursery, Inc.

DUARTE
TREES & VINES

Duarte Nursery, Inc.

- Family owned based in Hughson, CA.
- Diversified permanent crops Nursery
- Seven field reps, five serving CA Almond Ind.

CA Almond Planting Trends

Planting Trends

- Total acres
- Where – regions
- How – farming systems

Competing Crops.

- Region
- Comparative returns

Research methods:

- DNI Sales records
- Survey DNI field reps
- Checked against industry sources

Competing crop qualifications:

- Permanent Crops
- High cash returns
- Lower marketing risk
- Low perishability
- Low to moderate labor input
- Proven over time

Which crops qualify?

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Yes.

- **Wine and Raisin Grapes**
- **Walnuts**
- **Pistachio**

No.

- **Olives**
- **Pomegranate**
- **Table grapes**
- **Fresh Stone fruit**
- **Kiwi**
- **Citrus**

Pistachio

- Salt tolerant
- Drought tolerant
- High production
- Good prices
- Low labor
- Many preproductive acres
- Long preproductive period
- Consolidated handlers

Wine and Raisin Grapes

- High input high output farming systems
- Long term contracts available
- Traditional diversification crop
- Rebounding market
- Consolidated buyers
- Higher labor
- Historically cyclical

Walnut

- High production
- High prices
- Low labor
- New farming system advances
- Not salt or drought tolerant
- Late compressed harvest season

How many acres?

Duarte Nursery estimated plantings

	2009	2010	2011	2012	2013	2014
Estimated Acres	22000	23936	35000	42000	45000	42000
Estimated Nursery Trees	2640000	2872320	4200000	5040000	5400000	5040000

- **Almond industry would be well served by a reliable confidential nursery survey.**

Where and How?

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Kern Co.

- Variable water quality and supply
- Large blocks
- Mostly conversion from annual crops
- Hybrid rootstock
- Acidification
- Competition with Pistachio
- Potential for growth

Where and How?

Central Valley drain

- Variable water quality and supply risk
- Large blocks
- Previous cotton ground
- Hybrid for poor water quality
- Acidification, humic acids
- Competition with Pistachio
- Potential for growth

Where and How?

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Westside - Firebaugh

- Strong soils, variable water risks
- Large blocks
- Previous diversified annual ground
- Hit hard by SJ Delta rulings in 2009-2010
- Hybrid and Peach
- Competition with Pistachio
- Growth limited by water security

Where and How?

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Eastside districts San Joaquin Co. to Fresno Co.

- Good soil, good water
- Smaller to midsize blocks
- Previous wine grape vyds, raisin, peach
- Peach rootstocks for replant issues
- Many older almond acres
- Competition with wine and raisin grapes
- Limited potential for net growth

Where and How?

Stanislaus and Merced Co. Rangeland

- Out of irrigation district Eastside
- Good quality groundwater
- Large blocks
- Slip plowing
- Peach Rootstocks
- Competition with wine grapes and walnuts
- Potential for growth

Where and How?

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SJ Delta?

- Heavier soils
- Reliable water
- Affordable land
- Still to be proven
- K86 rootstock
- Competition with wine grapes

Where and How?

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Sacramento Valley

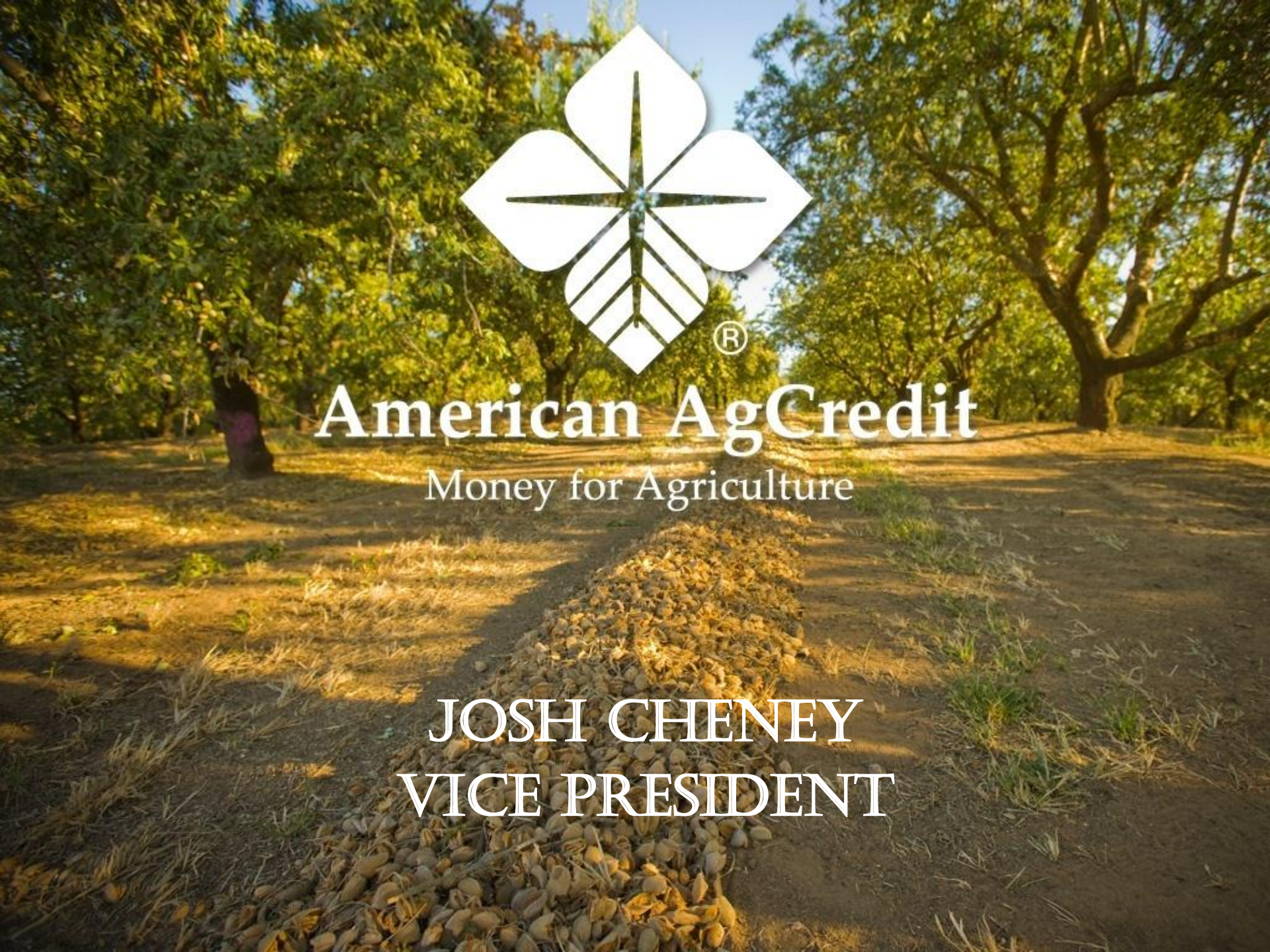
- Good soils
- Good water
- Affordable land
- Frost limits
- Competition with walnut
- K86 rootstock for anchorage
- Potential for growth

Thank you.

California Almond Industry

Josh Cheney

Vice President, American AgCredit


American AgCredit
Money for Agriculture
JOSH CHENEY
VICE PRESIDENT

Financing Facilities to Preserve Working Capital

If the almond industry is going to grow supply and manage that supply to meet growing demand, it will need a reliable source of capital to provide liquidity and expansion.

Discussion Points

- Capital is Available
- The Cost to Borrow is Affordable
- Importance of Working Capital
- Specific Financing Products that can Protect Working Capital and Provide for Growth
- How to Procure this Low Cost Financing

Capital is Available

- Financial institutions have the capital and want to lend it to you.
- Competition for your business is fierce
- Interest rates are low!

The Cost to Borrow is Affordable

- The cost to carry inventory for 6 months may be as low as $13 per thousand borrowed.
- For the average grower the cost to borrow for 6 months equates to less than $0.01/lb.
- Fixed rate mortgages at historical lows
- Average 20 Year Return S&P 500 = 8.0-9.0%

Could you get more than $0.01/lb. by having the flexibility to time your sales more strategically?

Importance of Working Capital

- Strong Working Capital Position = Strong Cash Position
- Quick **access** to cash is the key

Why?

Access to cash allows you **FLEXIBILITY** to:

- Manage supply by allowing Growers and Handlers to sell at the optimal time.
- Manage tax liability (i.e. prepaid expenses)
- Seize opportunities (i.e. quick purchase of real estate or equipment)

Specific Financing Products

- Traditional Operating Loan/Line of Credit
- Revolving Equity Line of Credit (RELOC)
- Leasing
- Development Loans

Traditional Line of Credit "RLOC"

One to Three Year Maturity

Secured By Personal Property (Crops, A/R's, etc.)

Advantages:

- Secured by personal property, sometimes unsecured
- Only pay interest on your outstanding balance

Disadvantages:

- Have to renew often
- Higher risk and servicing = higher financing costs
- Handlers/Processors often don't own the inventory = nothing to Secure the Loan with.

Revolving Equity Line of Credit "RELOC"

Five to Twenty Year Maturity
Secured By Real Estate

Advantages:

- Once and done
- Least restrictive/flexible
- Low risk equals low interest rate
- Only pay interest on your outstanding balance
- Allows you to move quickly in the market

Disadvantages:

- Requires equity in Real Estate
- Reserved for strong, prudent borrowers

Lease

One to Ten Years Maturity
Secured By The Item To Be Financed

Advantages:

- 100% Financing
- Capital Improvements Including:
  - Buildings
  - Solar Facilities
  - Hulling/Shelling Equipment
  - Irrigation Systems
  - Orchard Equipment
- Low Fixed Rates
- Great for Tenant Farmers or When Little Equity in Real Estate

Development Loans

Fifteen to Twenty-Five Year Maturity
Secured By Real Estate

Advantage:

- Interest Only During Development Phase
- Repayment of Principal Begins When Orchard Enters Production
- Flexible
- Preserve Working Capital

Disadvantage:

- Requires equity in Real Estate.

How to Procure Low Cost Financing?

- **Must have accurate, high quality, accrual financial information**
  - **If you don't know how much money you're making (or losing) I certainly don't.**
- **Too much leverage ties the bank's hands**
- **Tax returns are useful for calculating your tax liability, not for demonstrating profitability.**

Conclusion

- **Money is available**
- **Take advantage of the low rates to:**
  - **Build flexibility into your operation**
  - **Grow your operation**
  - **Increase ROA - Leverage**
- **Keep accurate records and invest the time and effort into producing accurate accrual financial statements.**

Economics of Almond Production: Panel Participants

Bill Harp, An Almond Grower, Bakersfield, CA

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California Almond Industry Economic Overview

Bill Harp, an Almond Grower

December 11-13, 2012

Grower Return by Region for 2010 CY
by Bill Harp, an Almond Grower

	Almond Growing Region			
	Northern	Central	Southern	State
Yield Per Acre	1,698	1,853	2,762	**2,200**
Bearing Acres	130,869	318,129	291,002	**740,000**
Total Reported Production	222,198,895	586,123,982	819,869,378	**1,628,192,255**
Total Paid Weight[1]:	220,465,744	579,288,604	810,308,061	**1,610,062,409**
Total Paid Weight/Acre:	1,685	1,821	2,785	**2,176**
Grower Price/Lb[2]:	$1.80	$1.77	$1.79	**$1.78**
Paid Grower Revenue/Acre[3]:	$3,030	$3,215	$4,974	**$3,874**
Growing Costs/Acre SJ Valley:	$2,700	$2,700	$2,700	**$2,700**
Discounted Growing Cost per Acre[4]:	$400	$200	$0	**$157**
Net Estimated Grower Cost:	$2,300	$2,500	$2,700	**$2,543**
Net Grower Return/Acre:	$730	$715	$2,274	**$1,331**

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Almond Grower ROA Definition

- **The yearly return of one bearing acre divided by the market value of one bearing acre**

$$\frac{\text{Grower Return \$}}{\text{Market Value \$}} = \frac{\$1{,}331}{\$18{,}000} = 7.4\%$$

CY10 ROA

Grower Return = Revenue - Cost

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Grower Return (ROA) History

Almond Grower Return - Return on Asset Analysis

Analysis of the most recent past 10 Years: 2001 - 2010

	Crop Year Grouping				10 Yr History
	2001-2003	2004 - 2007	2008 - 2010	2010	2001 - 2010
Wtd. Avg Yield/Acre	1,810	1,830	2,172	2,200	1,943
Wtd. Avg Net Return/Acre	$545	$1,854	$981	$1,331	$1,207
Wtd. Avg Market Value of 1 Acre[1]	$7,675	$13,956	$17,187	$18,000	$13,423
Pre-Tax Return on Asset[2]	7.1%	13.3%	5.7%	7.4%	9.0%
Wtd. Avg Asset Appreciation	$ 669	$ 1,849	$ 673	$1,000	$ 1,131
Asset Appreciation %	8.7%	13.2%	3.9%	5.6%	8.4%
Pre-Tax Return on Asset[2] incl Asset Appreciation	15.8%	26.5%	9.6%	12.9%	17.4%

1. Value of 1 Mature Acre - Source from the "Trends" in Agricultural Land and Lease Values Annual Report & cross checked with local land appraisers records.
2. ROA = based on weighted average market value of 1 acre of mature almonds for given period.

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Almond Grower ROA Target Range

- Almond Grower ROA Target Range[1]
  - **10-20% Yearly Return on Asset (excluding asset appreciation)**
  - **Only 5-10% ROA after taxes, so reasonable**
  - Supported by the expectations of other growers knowledgeable of the risks associated with Almonds Orchards **based on at least a 20-25 year life**

1. Grower's Perspective: As an independent California Almond Grower and Investor, my opinion of an acceptable ("fair and reasonable") Almond Grower ROA is as follows.

Projection of Bearing Acreage Increase based Known & Estimated Plantings and Removals

		Projected Bearing Acres 2012 - 2017					
	2011	2012	2013	2014	2015	2016	2017
	Actual	Already Reported Plantings			Estimated Plantings		
Forecasted Bearing Acres	**760,000**	**780,000**	**794,797**	**803,733**	**844,733**	**885,733**	**926,733**
Acres Planted 3 years prior: (as originally Reported)		22,832	18,623	14,960	35,000	35,000	35,000
Adj. Planted Acreage: 60% more than Orig. Reported		**36,696**	**29,797**	**23,936**	**56,000**	**56,000**	**56,000**
Expected Removals (average of 2004-2011)		16,696	15,000	15,000	15,000	15,000	15,000
Net Increase in Bearing Acres (estimated) vs prior year:		**20,000**	**14,797**	**8,936**	**41,000**	**41,000**	**41,000**

Acres Planted and are Standing as of 2011 that are more than 20 years old (1990 or earlier planting):	**110,337**
Acres Planted and are Standing as of 2011 that are more than 17 to 20 years old (1991-1993 plantings):	**38,584**

Average Net Increase in Bearing Acres 2004-2012: 26,250 acres
Largest Net Increase in Bearing Acres from one crop year to the next: 40,000 acres (In 2008 & 2009 Crop Years).

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California Almond Demand History

	Recent Crop Year Demand Growth Averages				
	3 Year	5 Year	10 Year	15 Year	Period when Target ROA Achieved
	'09-'11	'07-'11	'02 - '11	'97 - '11	'04 - '07
Actual Demand Growth					
Domestic	10.2%	8.4%	9.0%	10.0%	4.8%
Export	12.1%	14.7%	9.5%	9.2%	8.2%
Total	11.5%	12.7%	9.3%	9.3%	7.0%

Actual 2011 Crop Year Demand Growth = 13.7%
Actual 2010 Crop Year Demand Growth = 13.3%

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It Appears Future Demand Growth will be Restricted by Acreage Growth

2012 - 2017 Demand Growth based on Projected Bearing Acres

	Restricted Growth Based on Projected Bearing Acres @ Random Yield/Acre Averages 2012 - 2017				Unrestricted Conservative Demand Growth
	2,400	2,500	2,600	2,700	
Projected Demand Growth					
Domestic	1.8%	2.6%	3.3%	4.1%	7.5%
Export	2.5%	3.3%	4.1%	4.9%	7.3%
Total	2.0%	2.8%	3.6%	4.3%	7.3%

(6.3% CAGR)

= Conservative Demand Growth Forecast based on Research & Recent Histor

= Actual Avg. 2008 - 2010

= Deloitte 2011 Study

= Assumes Industry must carry-out 13% of Total Supply each year.

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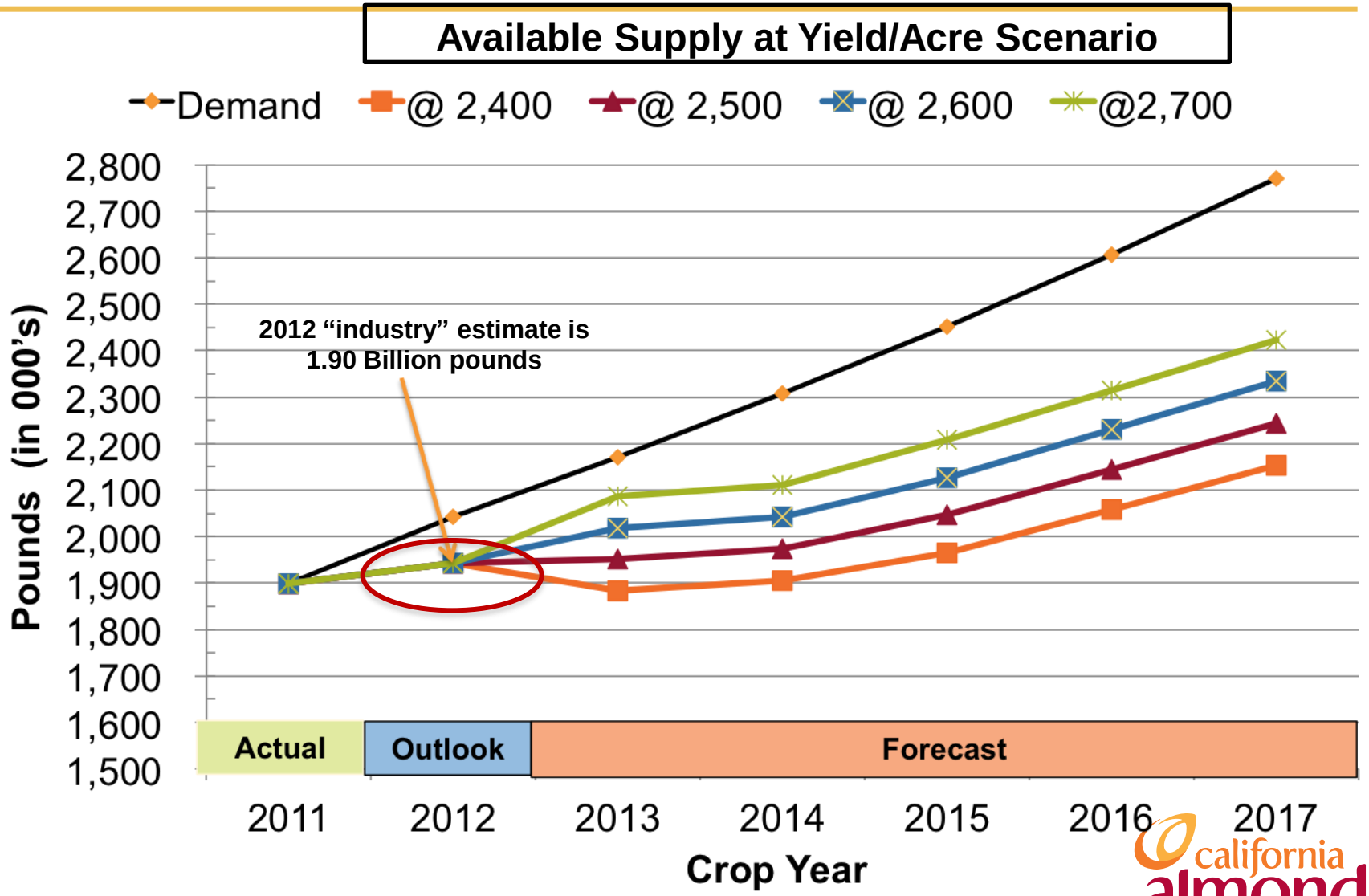
Acreage Restricted Supply (Available to Ship) vs. Conservative Unrestricted Demand Growth @ 6.3% CAGR



Acreage Restricted Supply = Net Edible Production + carry-in supply – (less: required carryout supply)
Required carryout = 13% of Total Supply for a given CY.

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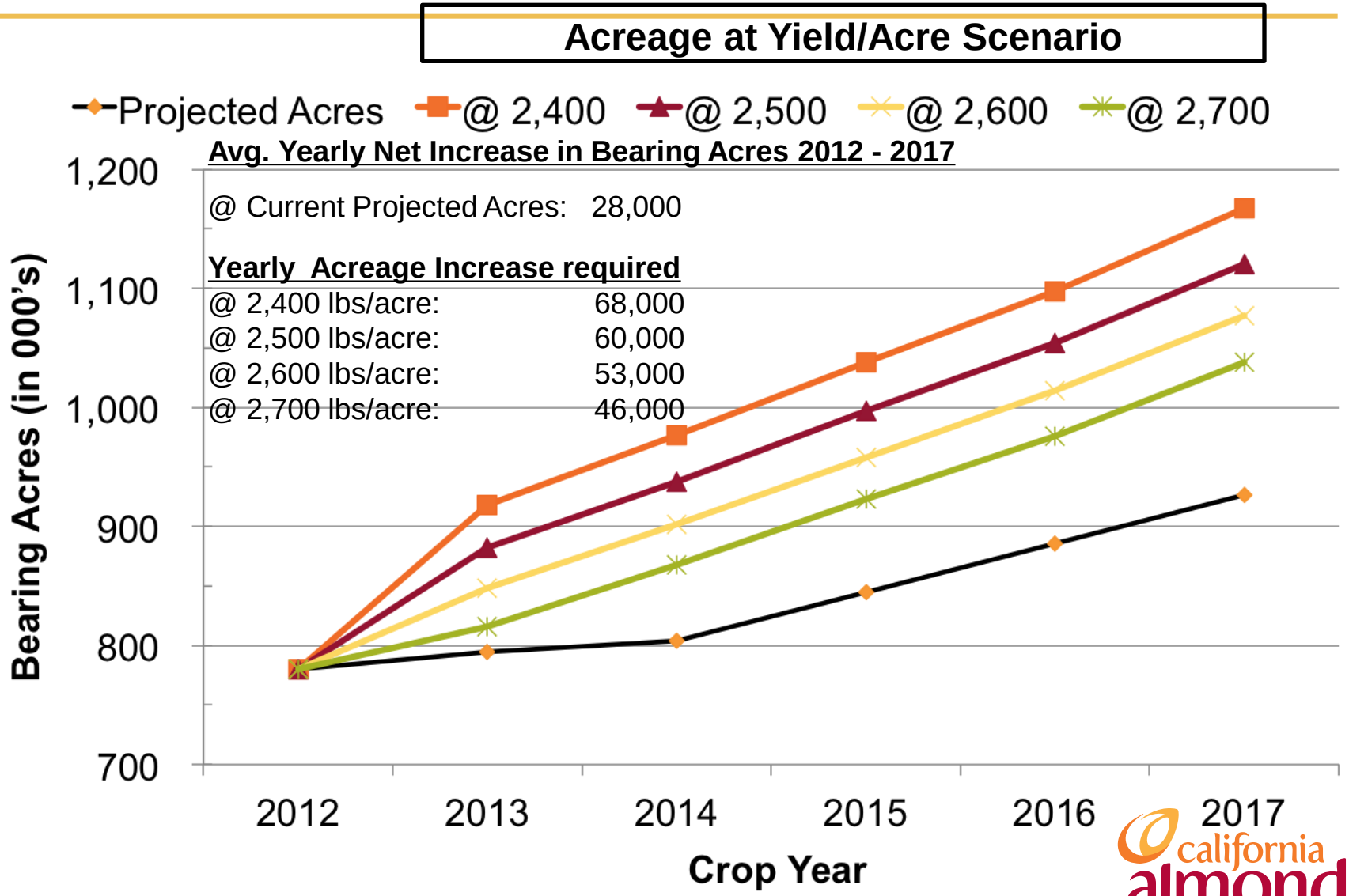
Bearing Acreage Required to Meet 6.3% CAGR for the period 2012 – 2017



Model assumes 15% of Total Current Demand must be carried-out each crop year (=13% of Total Supply)

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Outlook for 2012-2017

- Optimism for Grower Returns for 2012-2017[1]:
  - 10-20% Grower ROAs are possible with projected almond supply and demand fundamentals
  - With new projected tax rates, the ROAs after tax would only be 5-10% for growers
  - Growers need to become informed, aware, and involved to support our capable Almond Handlers
  - Grower should review Monthly information and reports from Almond Board
  - Growers should research and study Almond Market Dynamics and apply principles to practice on regular basis
  - **Supply Management is the new "Reserve"**

1. Grower's Perspective: As an independent California Almond Grower and Investor,

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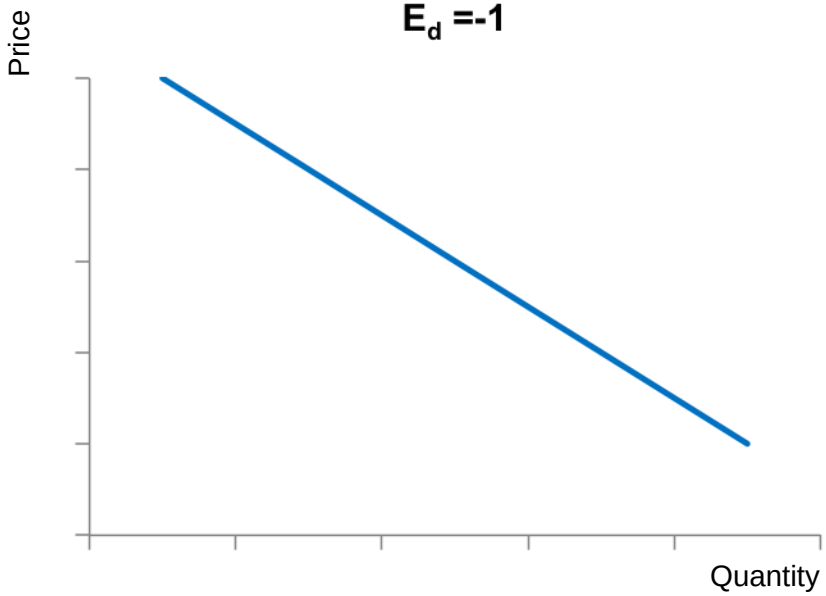
Price Elasticity (E_d) measures the change in quantity demanded in response to a change in price

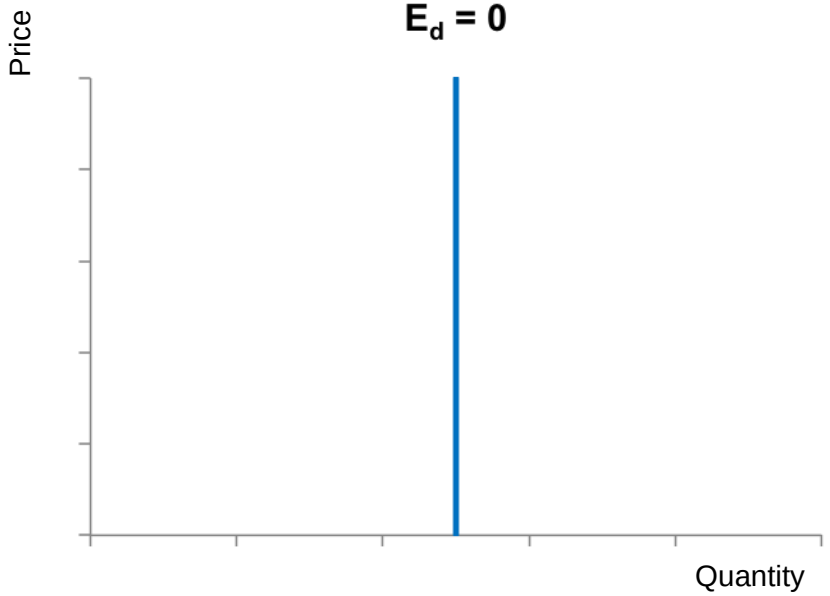
$$\frac{\%\ \Delta\ \text{Quantity Demanded (shipments)}}{\%\ \Delta\ \text{Price}} = E_d$$

Moderately Elastic
E_d =-1



- A 10% **increase** in price will likely cause a 10% **decrease** in quantity

Perfectly Inelastic
E_d = 0



- A 10% **increase** in price will likely cause **no change** in quantity

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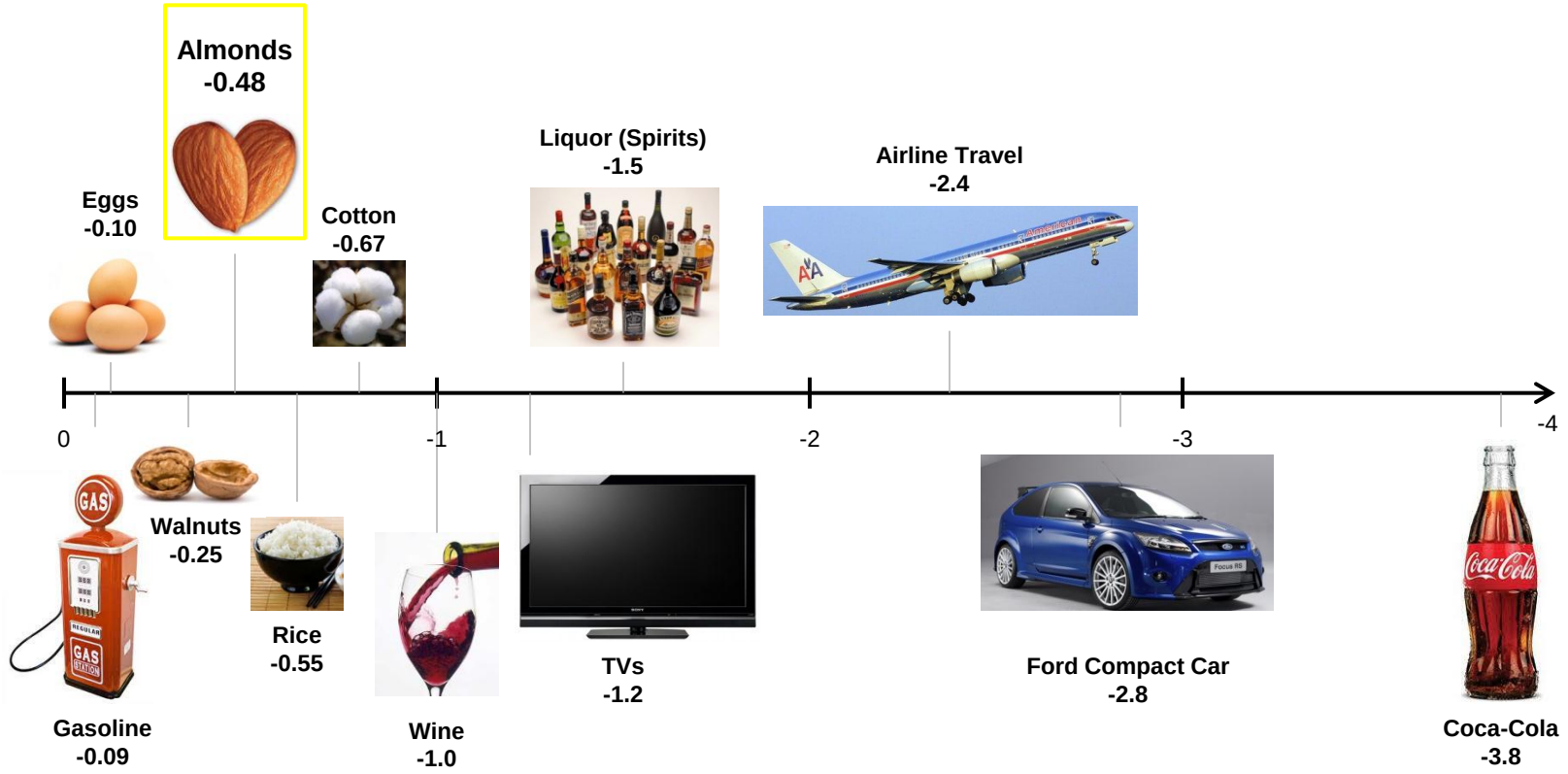
Price Elasticities of Select Consumer Goods

Goods that are more essential to everyday living and that have fewer substitutes are typically inelastic



Source: Mackinac Center for Public Policy, U.C. Davis, Dept of Agriculture and Resource Economics, June 2008 Working Paper

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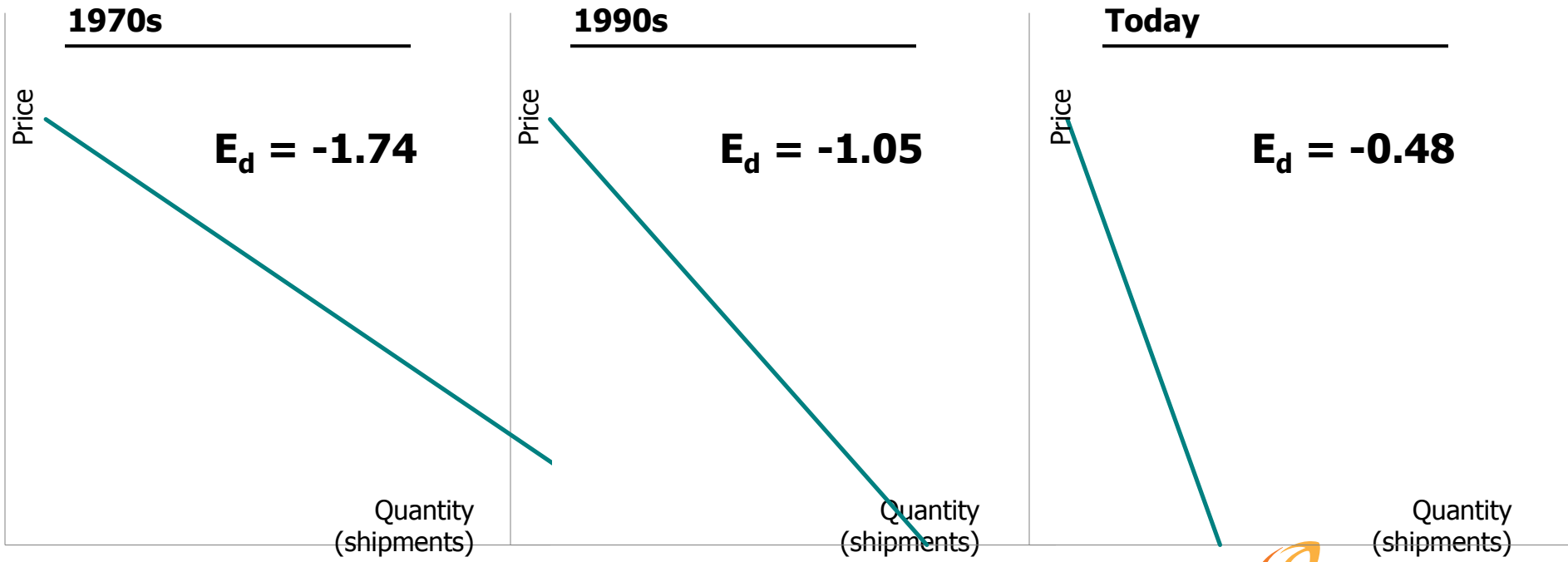
Almond Price Elasticity

Almonds have become more inelastic over the last 40 years



Source: U.C. Davis, Dept of Agriculture and Resource Economics, June 2008 Working Paper

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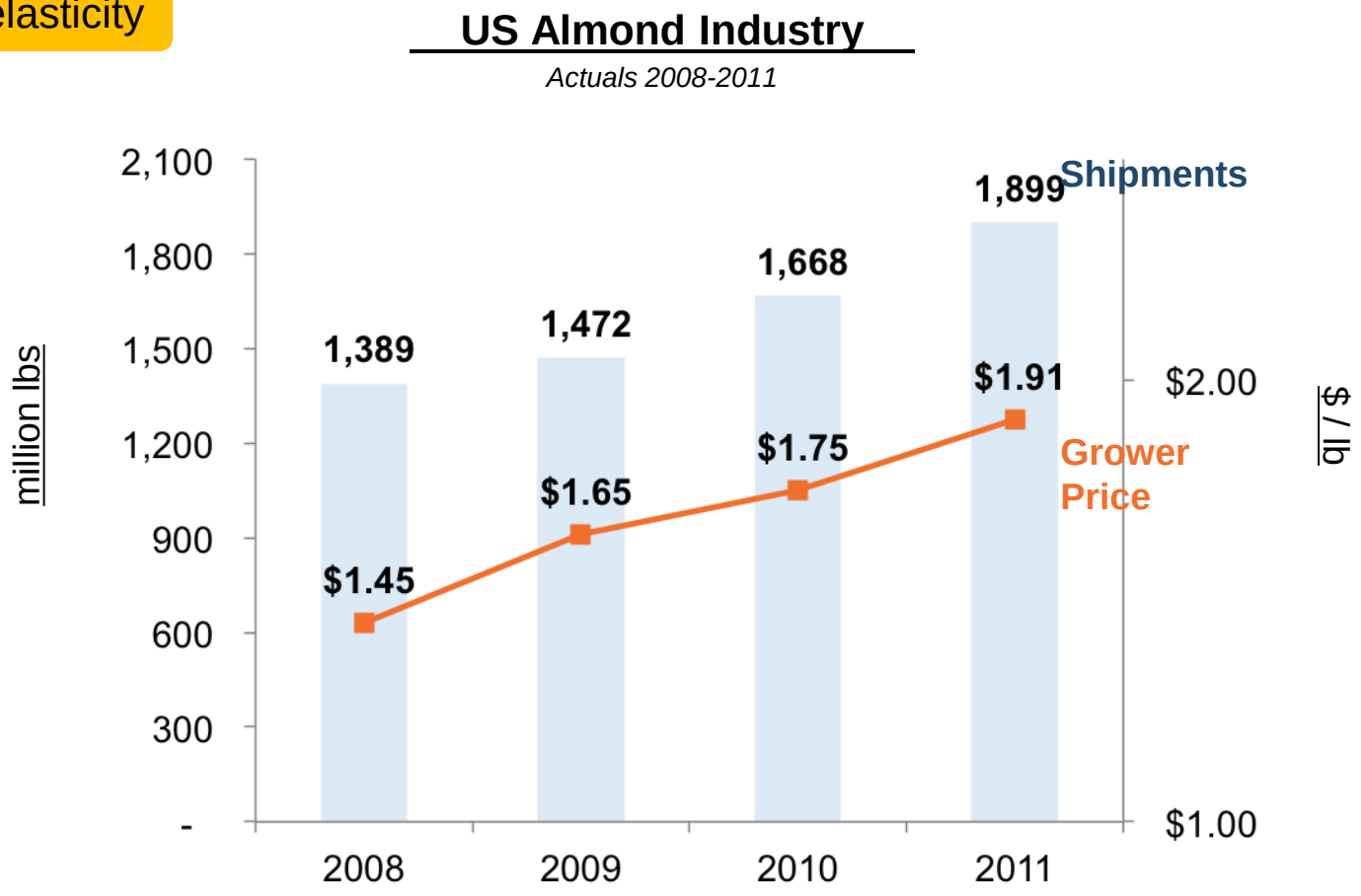
Over last 4 years, both prices and demand (shipments) have gone up!

Proof of inelasticity



Revenue	$2.0 B	$2.4 B	$2.9 B	$3.6 B

Source: USDA NASS

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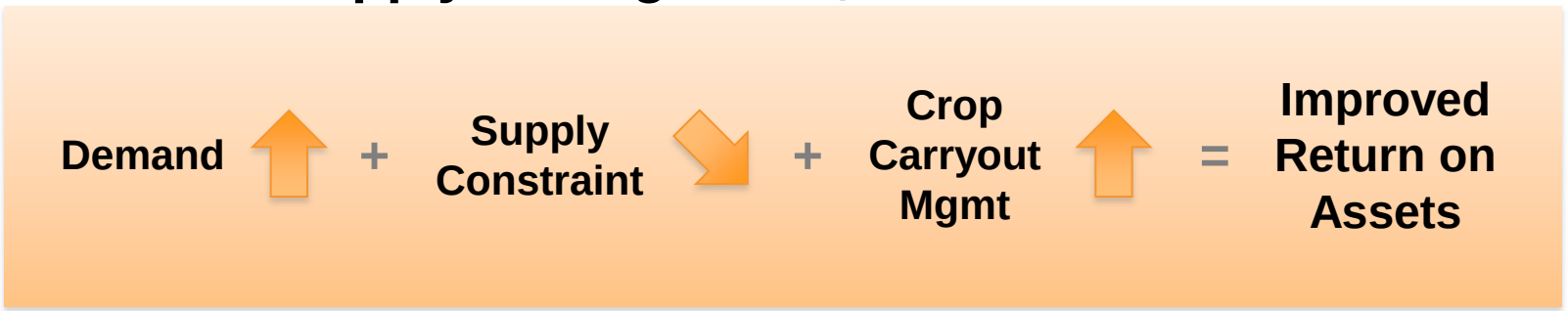
Key Takeaways

1. **10-20% Grower ROAs (only 5-10% after tax) are possible** and can be achieved consistently due to the supply and demand fundamentals in place for the period of 2012-2017 and the price inelasticity of almonds
2. **Effective supply management can reduce price volatility**
3. **Growers and handlers** need work **together** to achieve an improved ROA, but need capital and adequate operating lines for **Supply Management, the new "Reserve"**



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Questions for Panel Discussion

- Thoughts on accuracy of projected acres in presentation on Supply/Demand of Almonds for 2012-2017.
- General Discussion on “Supply Management” issues related to almond production facilities needed for storage, processing, packing, shipping and financing or equity needs of growers and handlers.
- General Discussion on Global Markets for food commodities, especially nuts and specifically almonds.
- General Discussion on Global Population Growth and the fixed amount of arable land.

- QUESTIONS FROM THE AUDIENCE

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Thank you!

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Questions