

Rice in the Delta – Economic Issues

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Two Major Economic Issues

1. Economic feasibility of converting commonly (currently) grown Delta crops to rice (and wetlands), and associated issues.
2. Impact and marketing implications of expanding rice production in the Delta.

Crops and Data

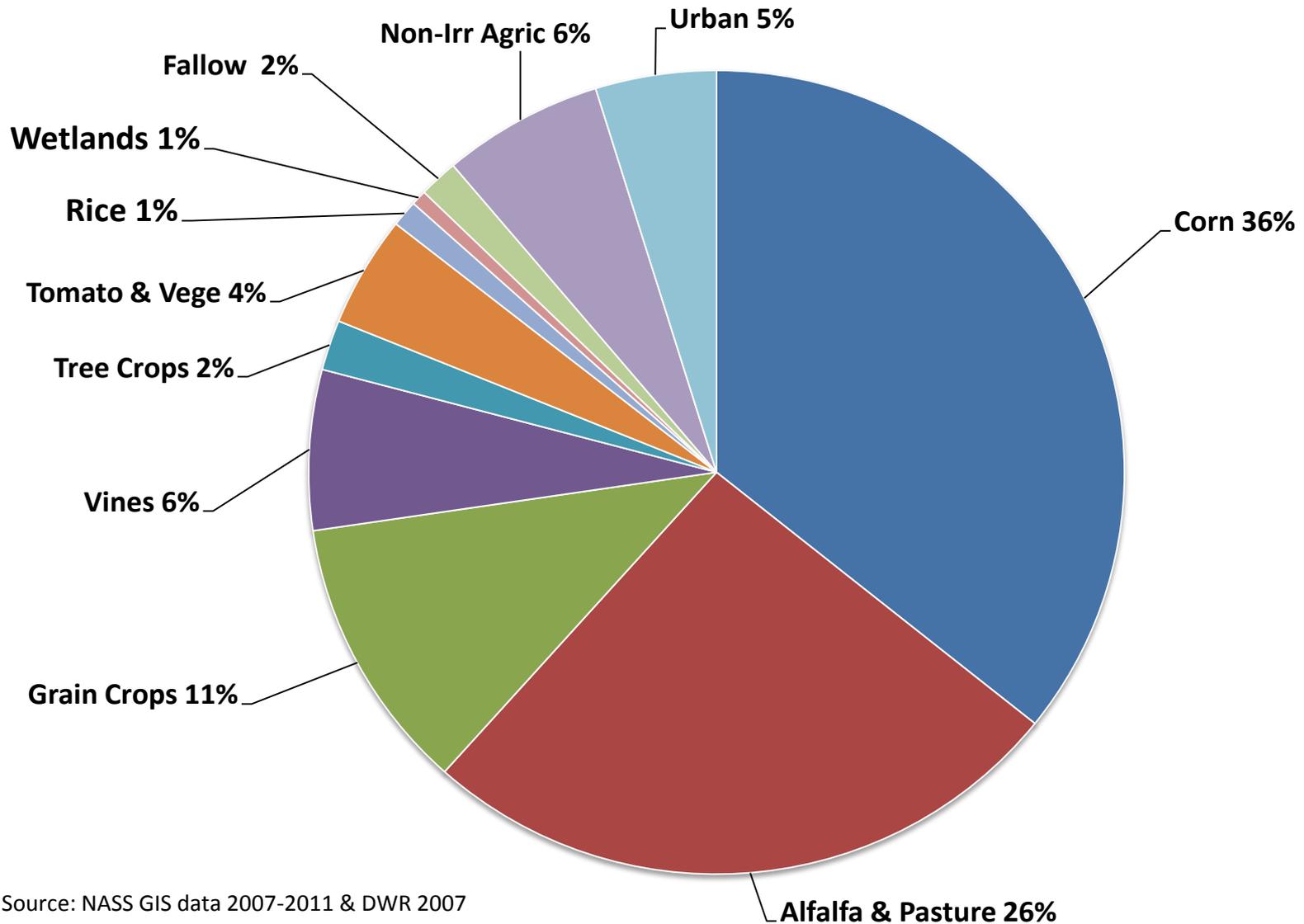
- Producers will NOT convert to rice production in the Delta if it is not profitable to do so.
- We use UC Davis Cost & Return studies to examine the feasibility of converting 14 crops commonly grown in the Delta, to rice.
- Crops were:
 - Adjusted for a 2010 base year
 - Adjusted for projected changes in yield, price and cost of production
 - Not yet adjusted for production in Delta

Methods

- Use of Net Present Values (NPV)
- NPV's difficult to summarize!
- We use “years to breakeven” as a sort of summarizing indicator/evaluation.
 - What price is it feasible to grow rice?
 - What crops are currently feasible in the Delta?
 - What crops are feasible for conversion to rice?
 - At what price of rice?
 - At relative prices, yields and cost of production for all crops?

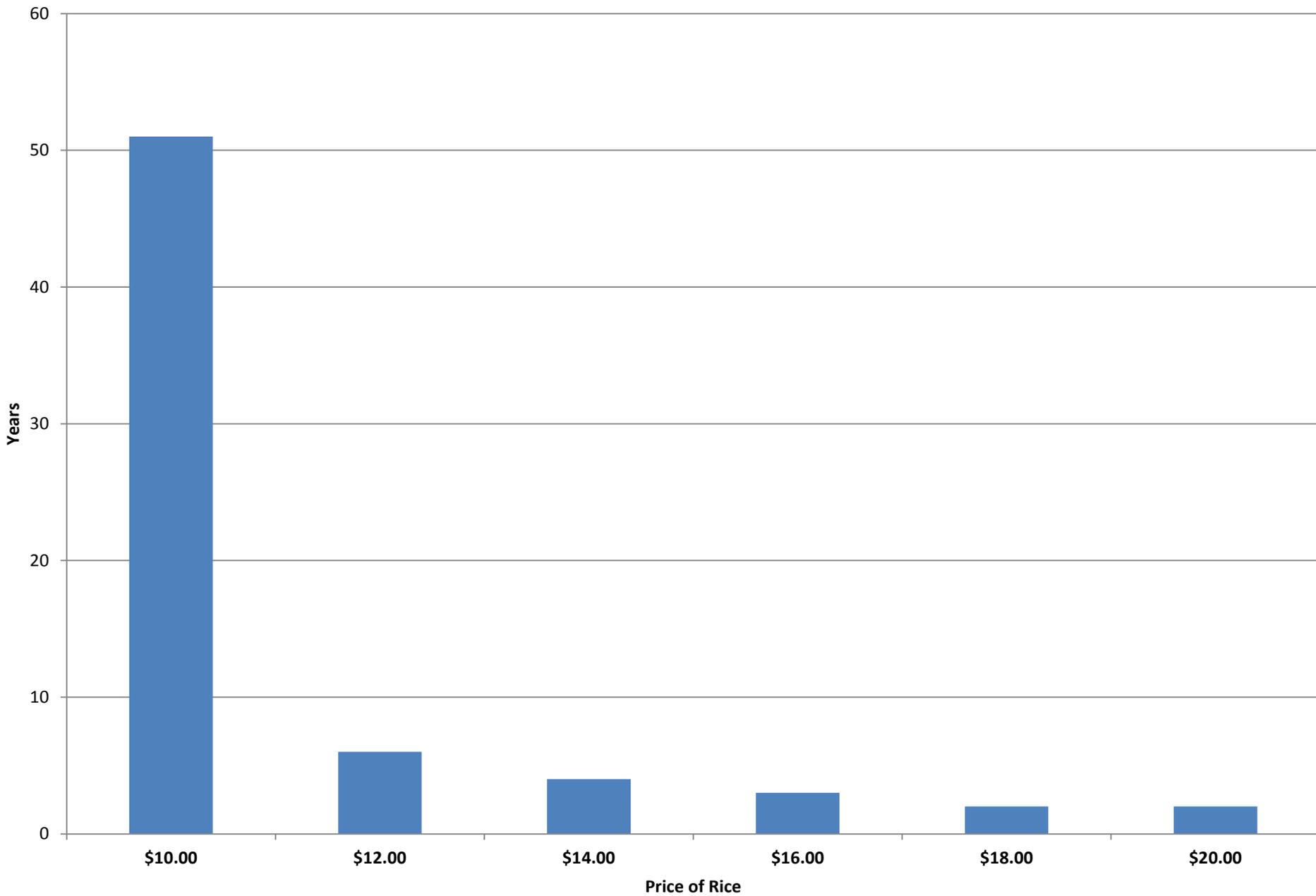
Average Land Use in Primary Delta 2007-2012

Total Land Area is about 320,000 acres

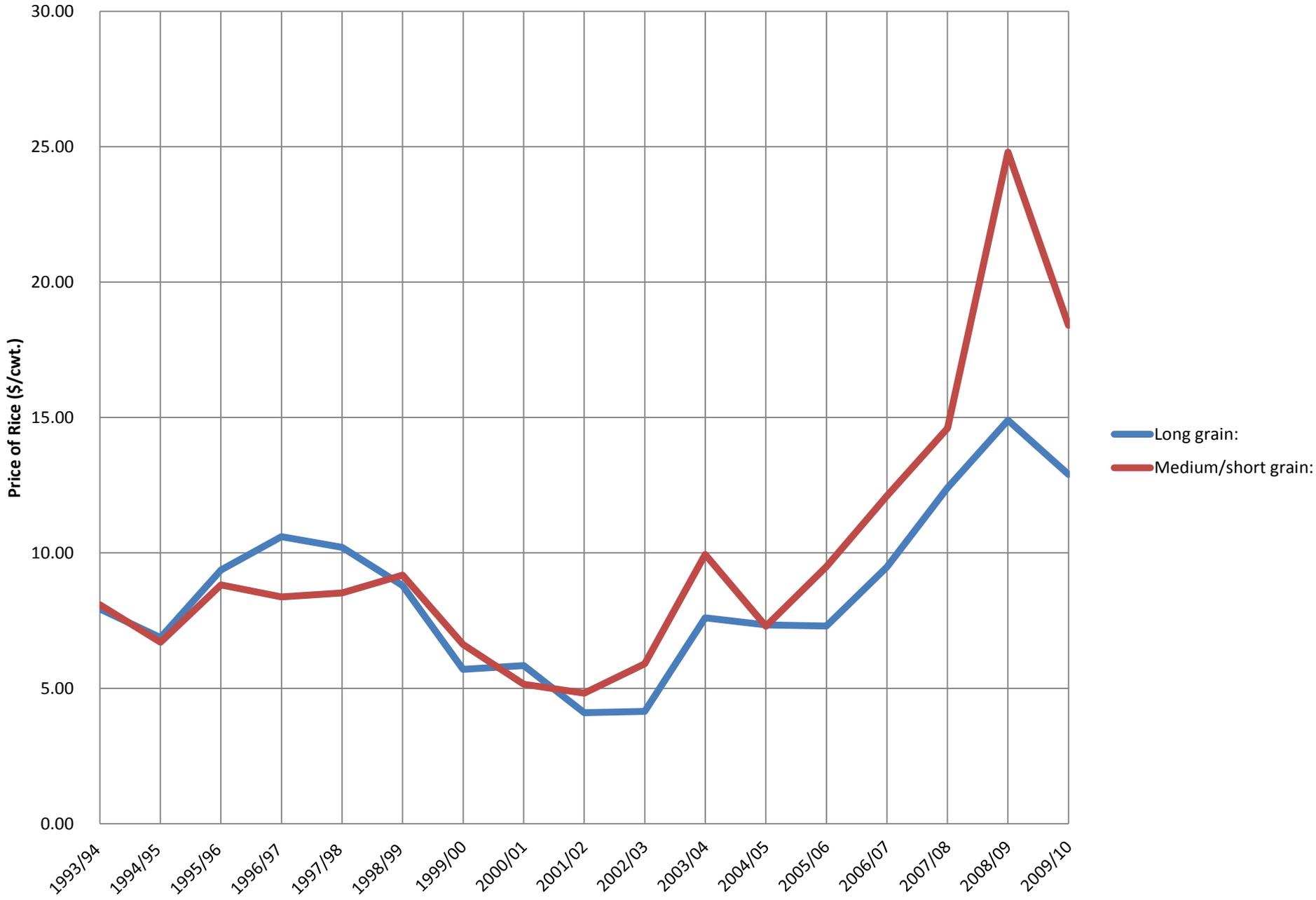


Source: NASS GIS data 2007-2011 & DWR 2007

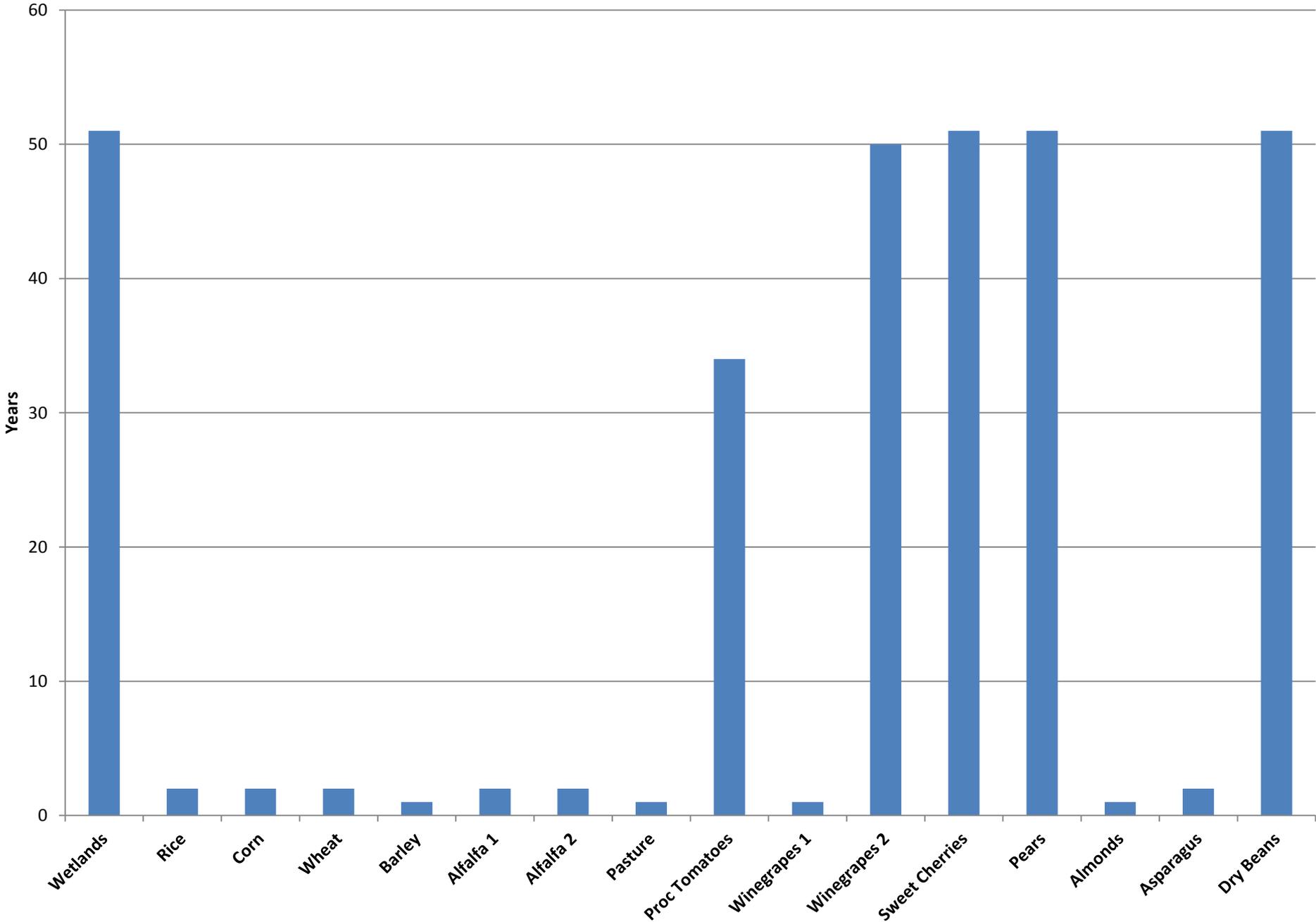
NPV: Years to Breakeven for Rice at Various Prices for Rice



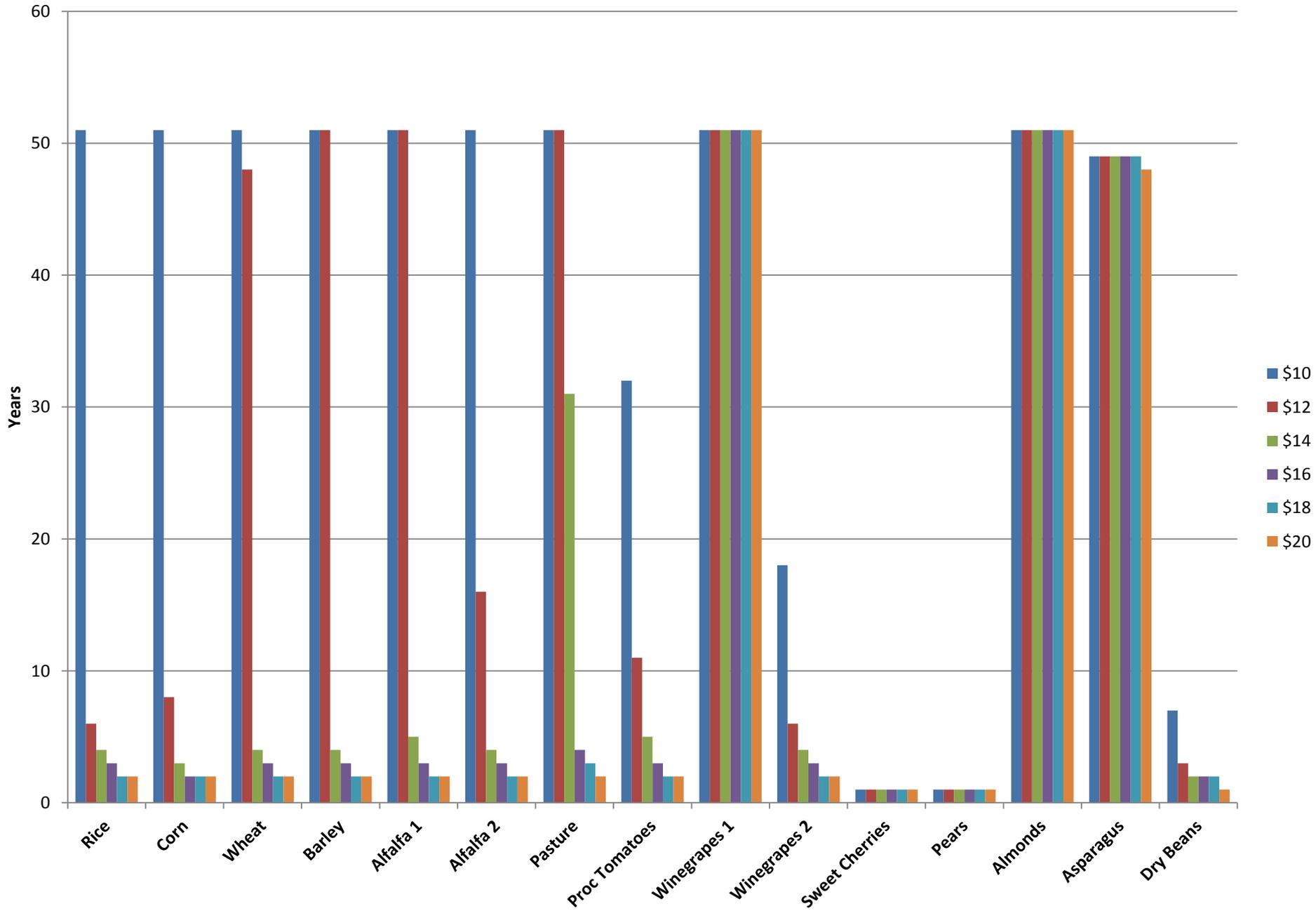
Weighted season-average farm price for rough rice, 1993/94 – 2009/10



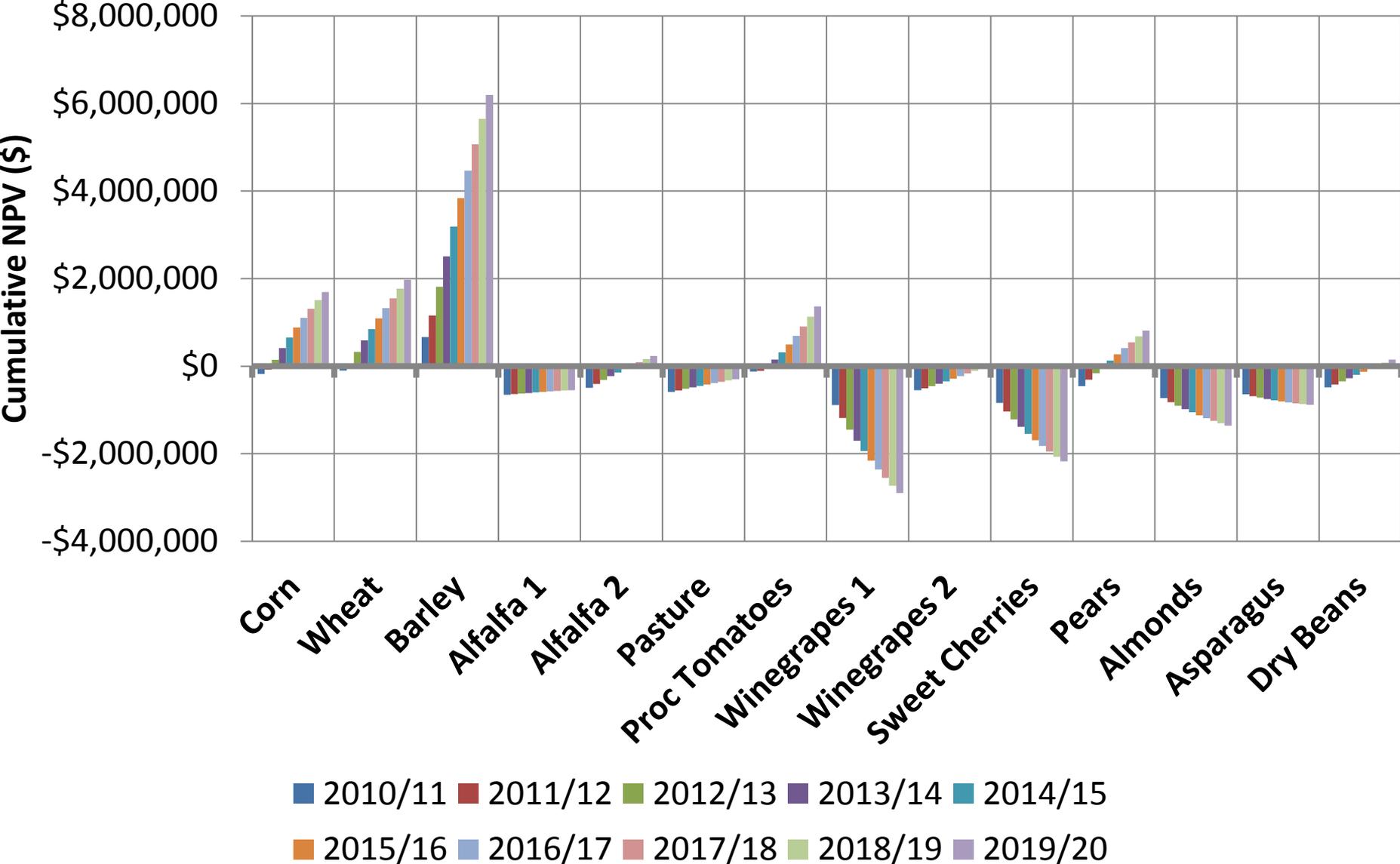
NPV: Years to Breakeven for All Crops at Current Prices



NPV: Years to Breakeven Converting Crops to RICE, for various prices of Rice



Cumulative NPV's for Converting Various Crops to Rice, with USDA Projected Prices, Yields & Cost of Production, 2010/11 - 2019/20



	NPV's Estimated over 50 years				NPV's Estimated over 10 years		
	Approx. % area	Not worth growing	Always Outcompete Rice	Highly Competitive w Rice	Easily Converted next 10 yrs.	Highly Comp next 10 yrs.	Not easily replaced next 10 yrs.
Corn	35%			X	X		
Wheat	6%			X	X		
Barley	2%			X	X		
Alfalfa 1	22%			X		X	
Alfalfa 2		X				X	
Pasture	3%			X		X	
Proc Tomatoes	2%	X			X		
Winegrapes 1	6%		X				X
Winegrapes 2		X				X	
Sweet Cherries	<1%	X					X
Pears	<1%	X			X		
Almonds	<1%		X				X
Asparagus	<2%		X				X
Dry Beans	<1%	X				X	

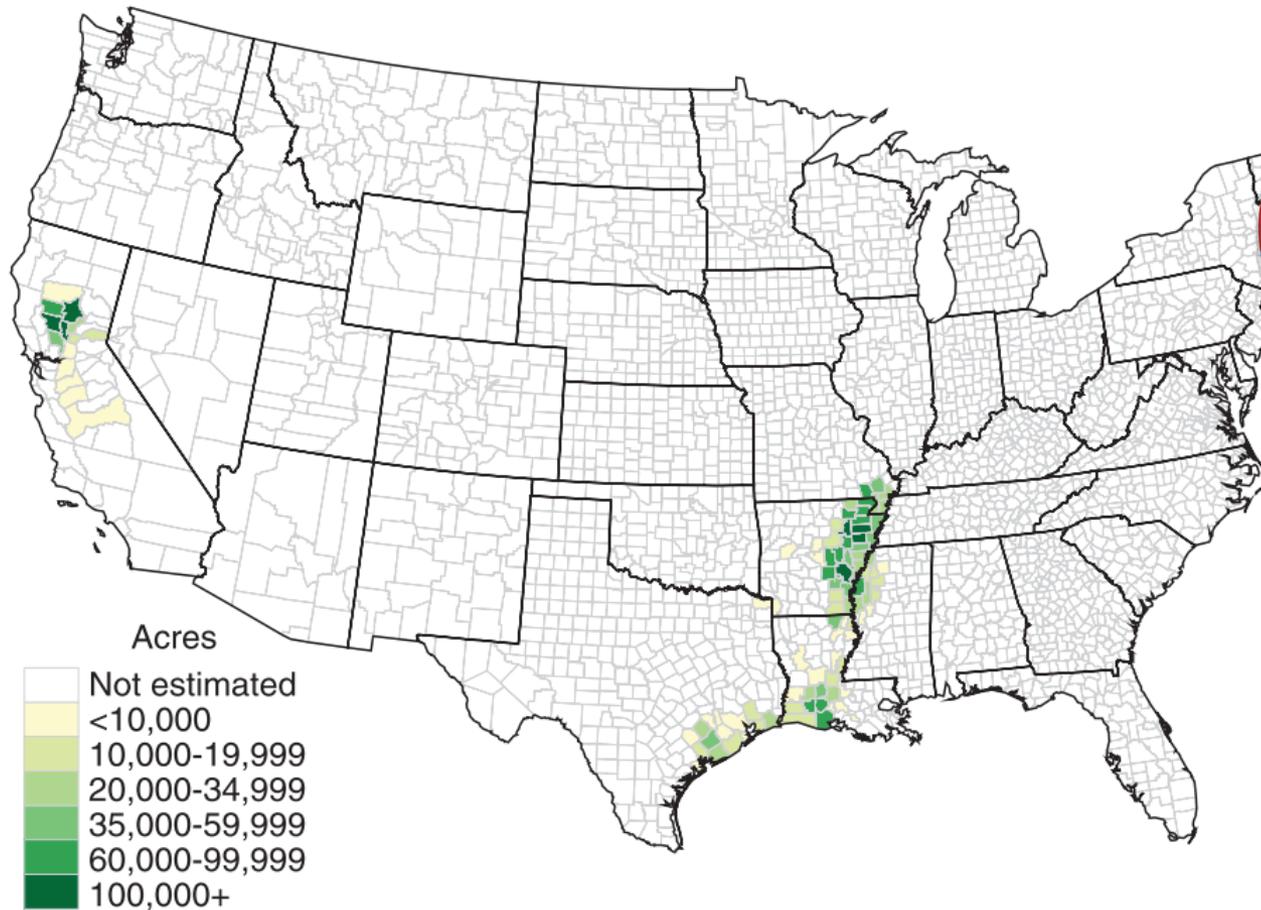
Summary

- We now have a basic idea of the feasibility or otherwise of growing rice in the Delta.
- Rice needs to maintain price at \$12+/cwt.
- Most crops that are NOT feasible to grow are a relatively small proportion of total Delta agriculture.
- We now need to decide:
 - where to grow rice,
 - how much to grow,
 - issues in expanding production of rice in the Delta,
 - whether there is critical mass to be reached.

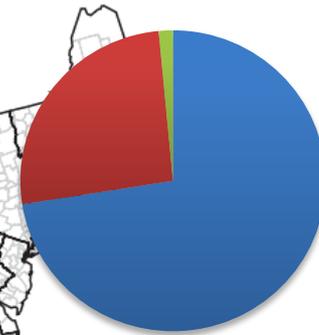
Marketing Implications of Growing Rice in the Delta

U.S. rice market in a glance

All rice planted acres by county, 2004



US Rice Production



- Long-grain
- Medium-grain
- Short-grain

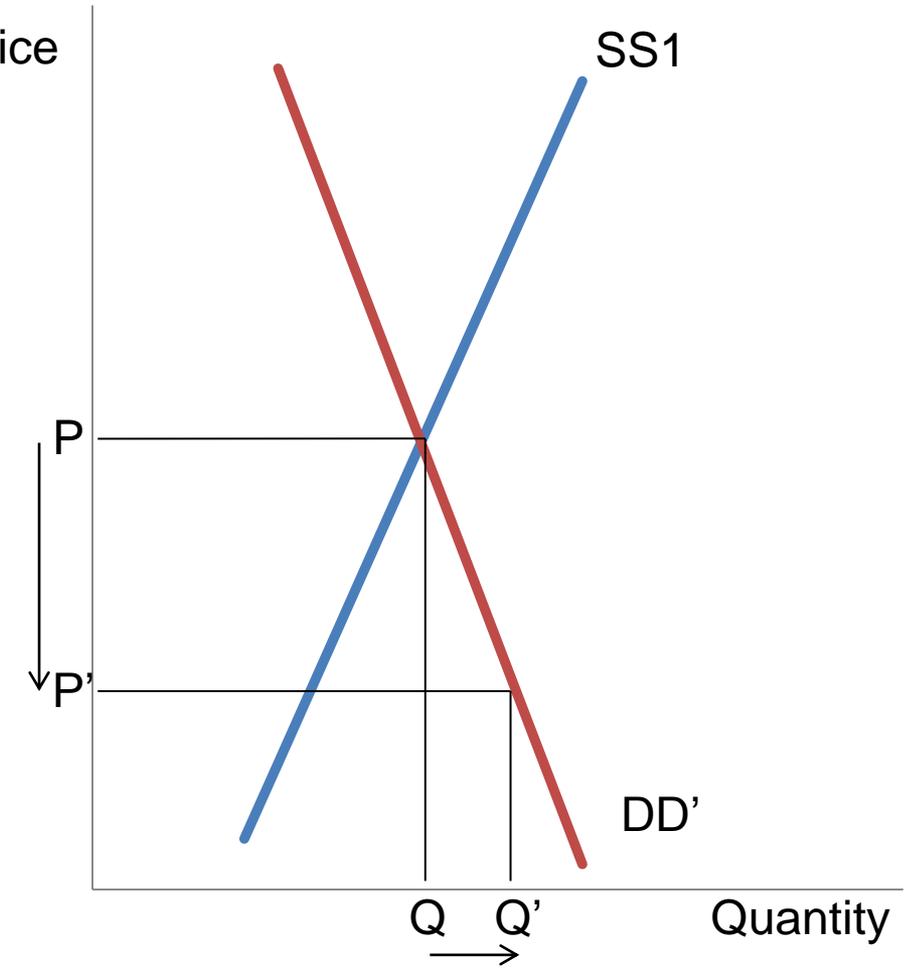
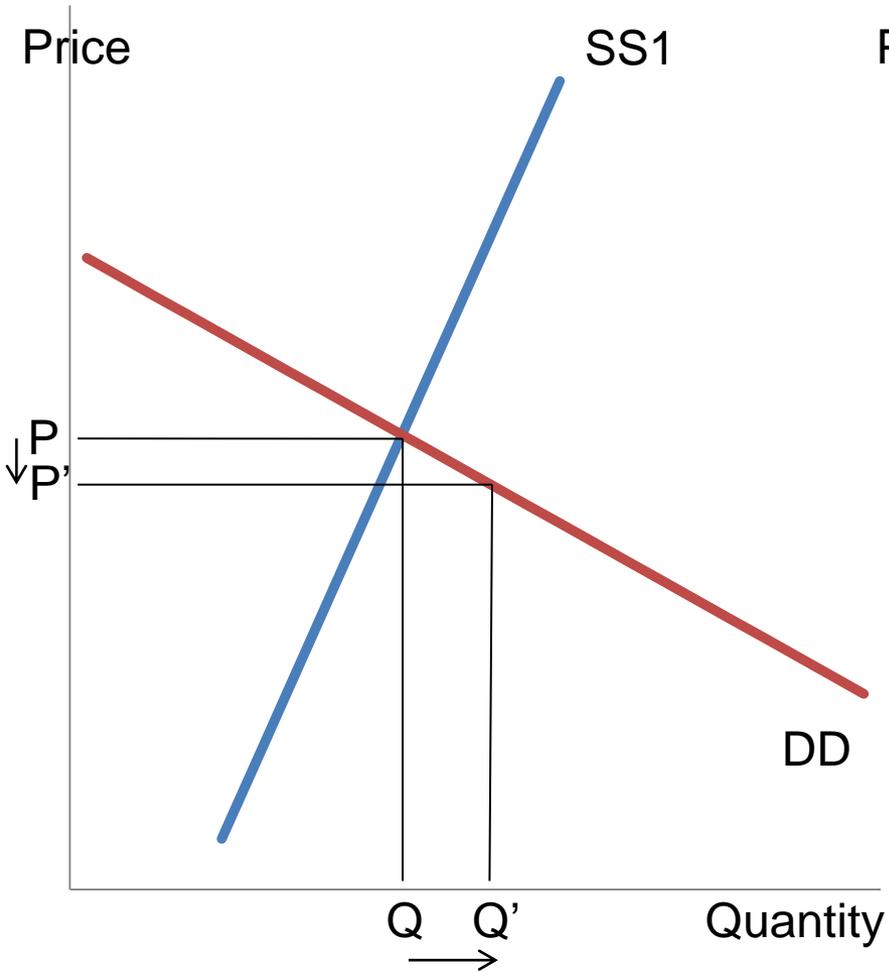
California medium-grain rice production is unique

- California grows more than two-thirds of the U.S. medium-grain rice and almost all the short-grain rice.
- The rice that we grow in California is unique in the sense that rice grown elsewhere in the U.S. does NOT compete with California rice
- We grow about 500,000 acres of rice in California
- If we recommended growing 50,000 acres of rice in the Delta – that would represent a 10% increase in supply

California rice market is inelastic

- The price elasticity of demand for rice is estimated to be -0.15 in Huang (1986) and -0.83 in Bergtold et al. (2004).
- In FAPRI Elasticity Database, the income elasticity of U.S. all rice demand is 0.34, the price elasticity of U.S. medium-grain rice demand is -0.01, and the price elasticity of U.S. medium-grain rice supply is 0.3.
- These numbers indicate that the demand for rice in the California market is highly inelastic.
- Therefore expanding rice production in the Delta may cause a decline in the price of rice in the short term.

Elastic Demand vs. Inelastic Demand



Implications & Qualifications

- The main point is: **Inelastic demand for rice makes it highly sensitive to small changes in the supply of rice.**
- However:
 - Supply unlikely to expand rapidly in the short term
 - Rice is storable
 - USDA projects increase in rice exports over the next 10 years
 - Water prices in the Sacramento Valley may change the dynamics of rice production in California.

Summary

- Feasibility:
 - Rice is a feasible replacement for many traditional crops currently grown in the Delta.
 - The price of rice needs to be at \$12+/cwt. to be feasible.
 - Crops that are not feasible to be replaced by rice are relatively small proportion of Delta Ag.
- Market Implications:
 - The price elasticity of demand for rice is highly inelastic – making the price of rice very sensitive to small changes in supply.
 - However, modest expansion, storability, exports and the price of water in the Sacramento Valley will mitigate the potential price instability.