



Modeling Crop Agriculture

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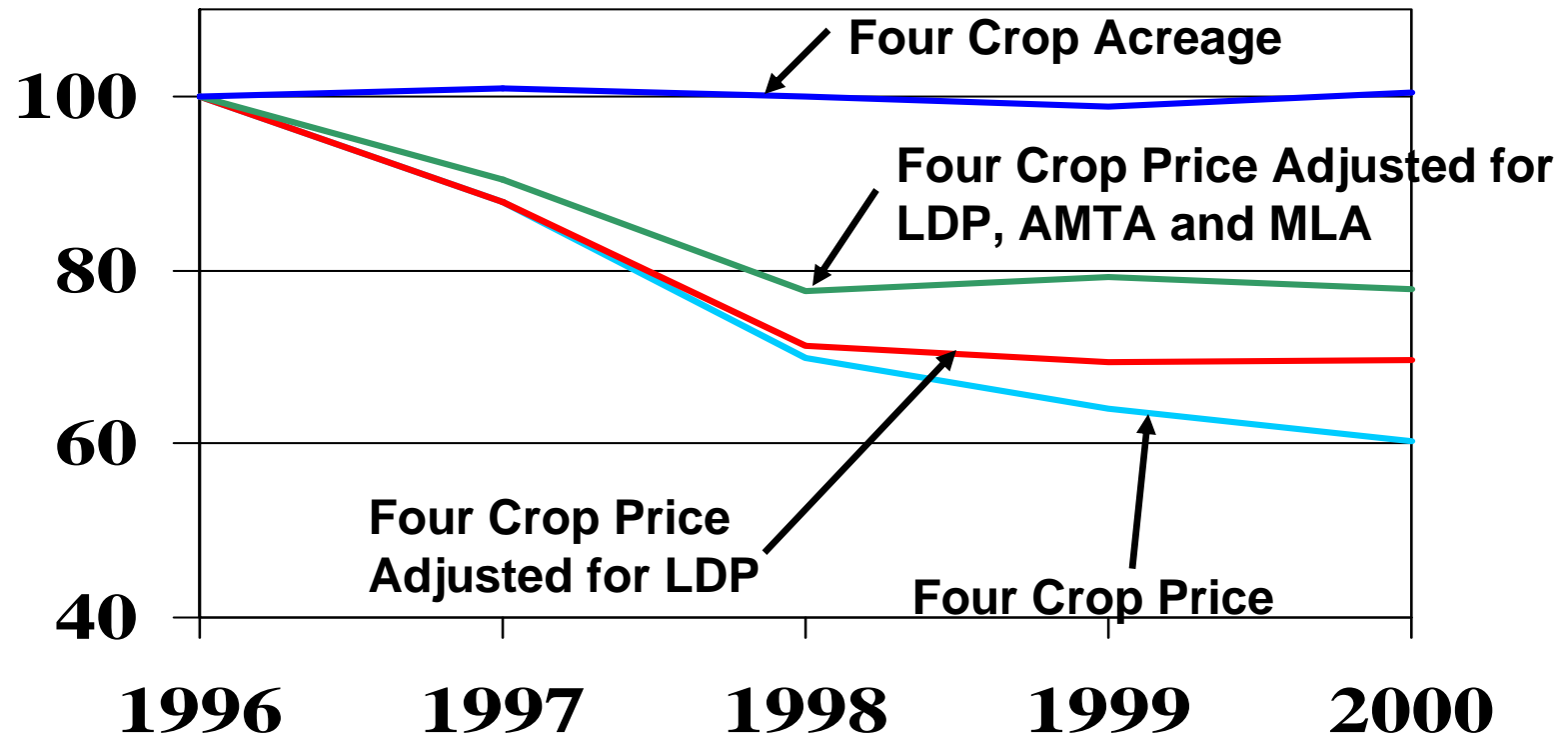
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**Agricultural Policy Analysis Center - Institute of Agriculture
The University of Tennessee**

Total Crop Acreage & Price Declines

- **Implication of Getting it Wrong:**
 - May Assume Can Always Shift to a Profitable Crop
 - May Assume Farmers Will Choose To Leave Land Idle
- **Lesson Learned:**
 - Total Crop Acreage Responds to Price Declines Much Differently Than Individual Commodity Acreage
- **Key Reasons:**
 - Since They Can't Affect Price, Revenue Decreases if Land Left Idle
 - Land Always Used – Owner/Operator May Change

Indexed Four Crop Acreage, Price and Price Adjusted for LDP, AMTA and MLA Payments



International Demand Growth & Exports

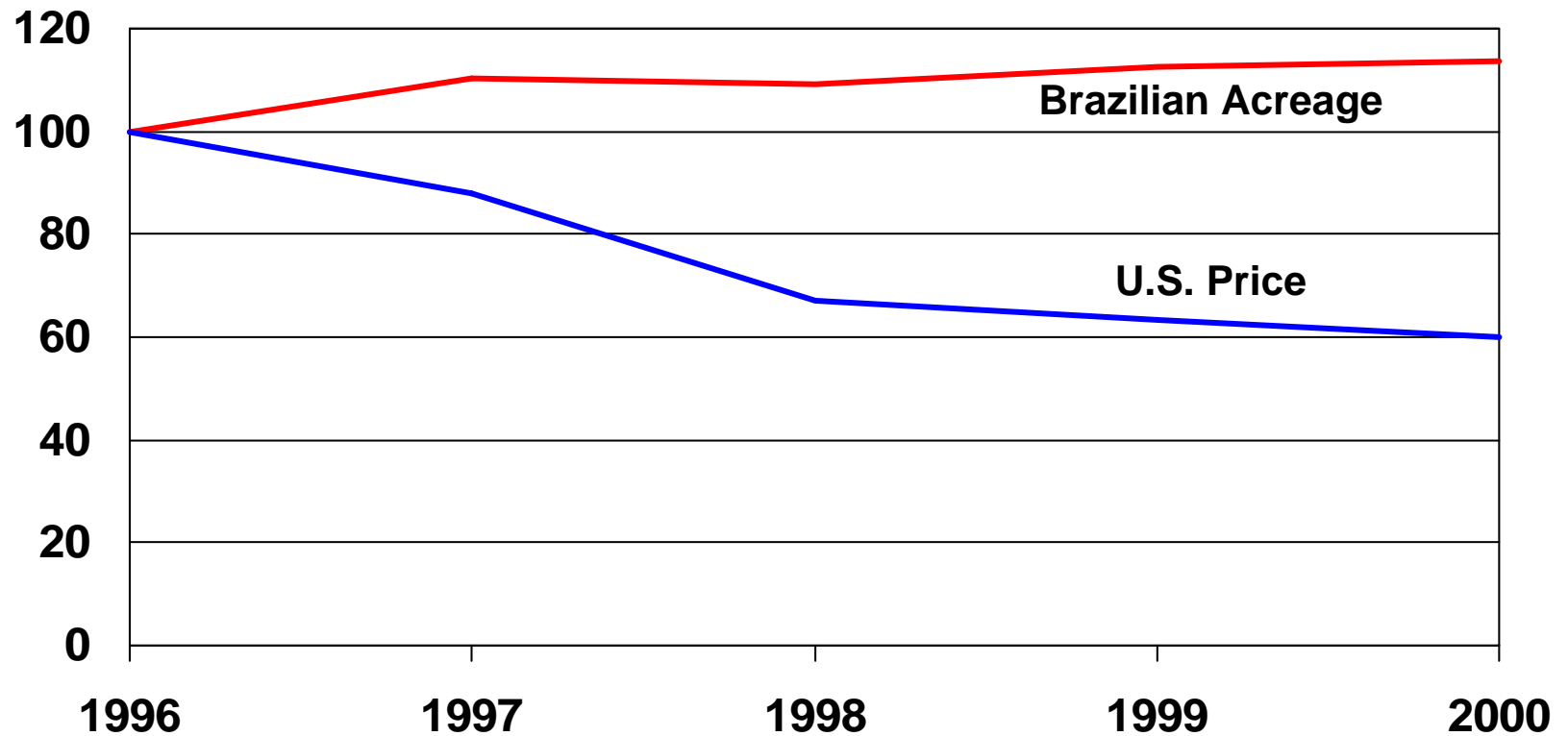
- **Implication of Getting it Wrong:**
 - May Assume Exports Will Grow Proportional to Int’nl Demand
 - May Assume U.S. Exports Will Be the Dominant Beneficiary
- **Lesson Learned:**
 - An Increase in International Demand Growth Usually is Filled by Importer Itself or Other Exporters
- **Key Reasons:**
 - Importing Countries do Not Want to Import
 - Export Competitors Also Eye Any Increase In Export Possibilities
 - Modern Technologies Expand Yields and Acreage Around the Globe

U.S. Export Volume & Price Declines

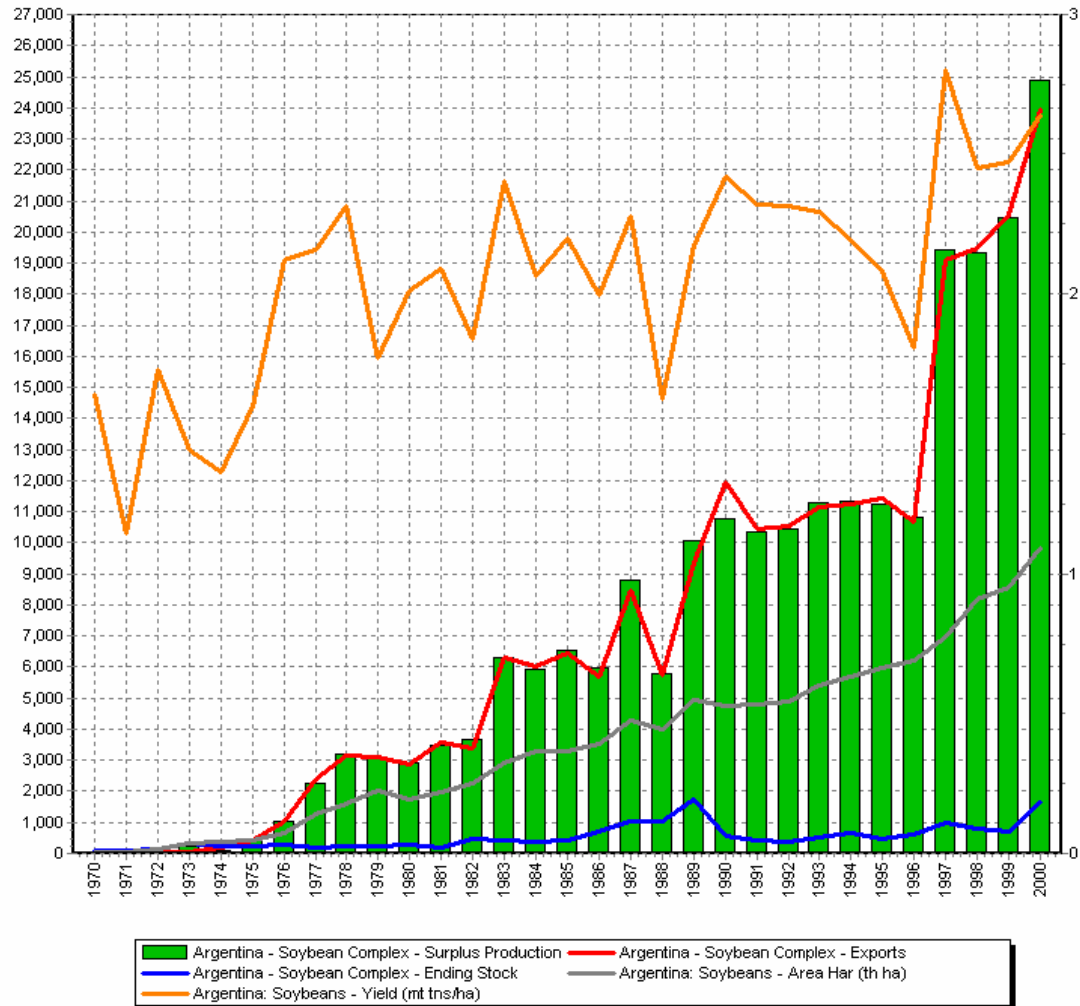
- **Implication of Getting it Wrong:**
 - May Assume That Lower Price Will Expand Exports Sufficiently So That:
 - World Market Share Will Increase
 - Value Of Exports Will Increase
 - Inventories Will Decline and Prices Begin to Rise
- **Lesson Learned:**
 - Lower Prices Has Little Effect on Quantities Demanded & Supplied by Other Countries
- **Key Reason:**
 - Compared to Other Determinants, Price Has Relatively Little Influence on Export Volume. When Prices Decline:
 - Importing Countries Do Not Demand Much More or Produce Much Less
 - Exporting Countries Do Not Fold Up Shop And Give Their Export Share to the U.S.

Brazilian Soybean Acreage and U.S. Price

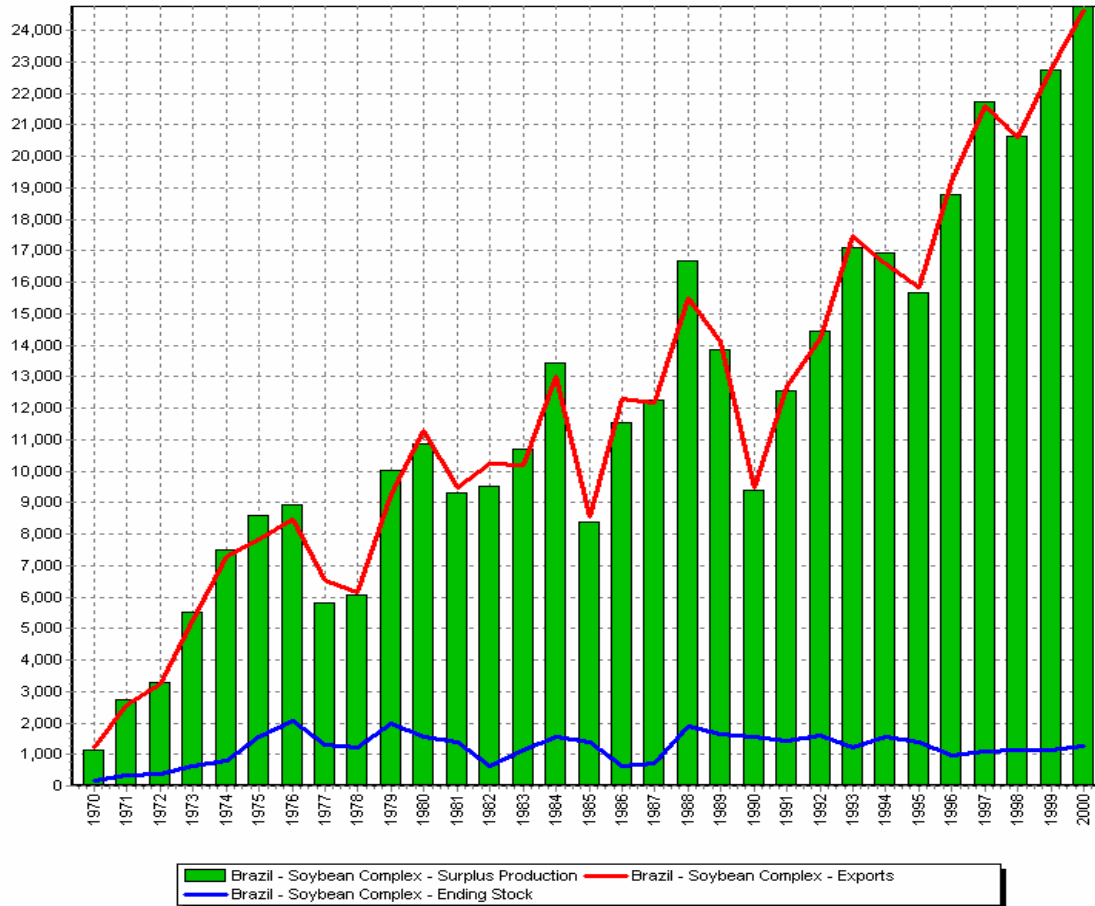
(Indexed: 1996=100)



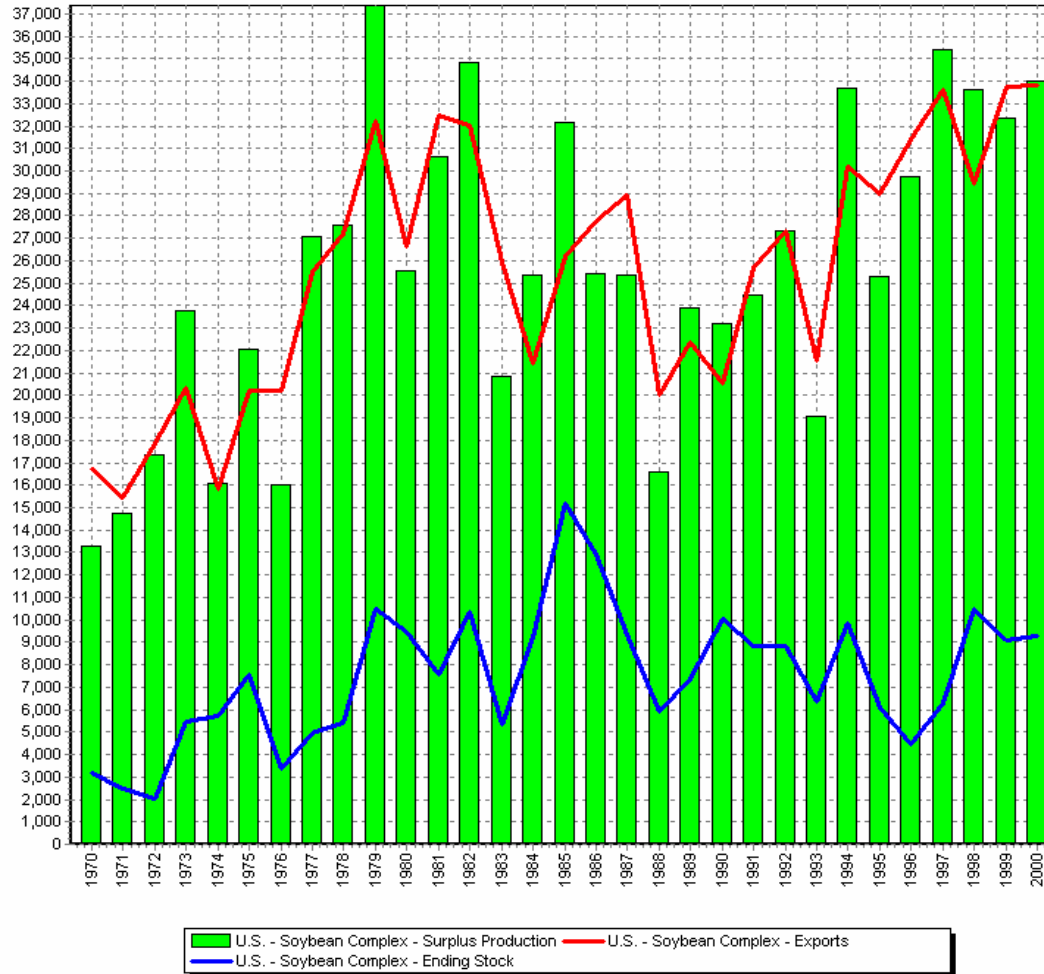
Argentine Soybean Complex Exports and Surplus Production



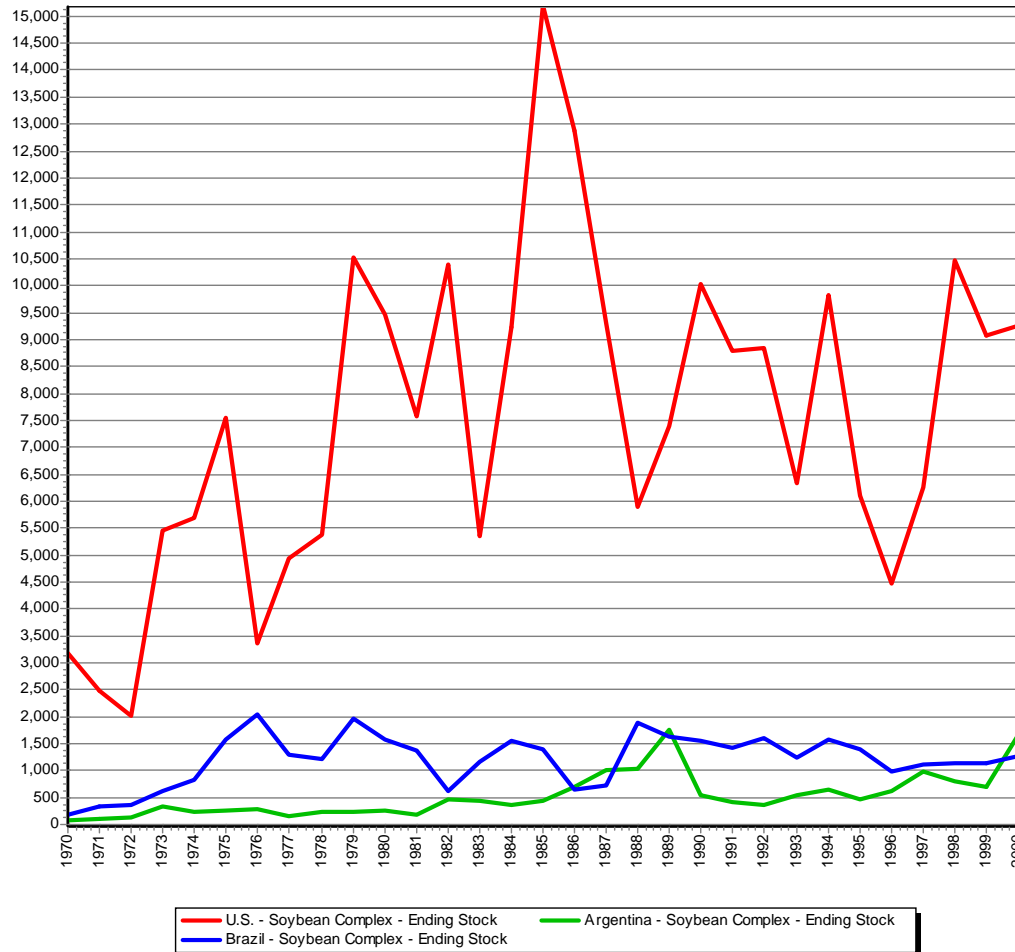
Brazilian Soybean Complex Exports and Surplus Production



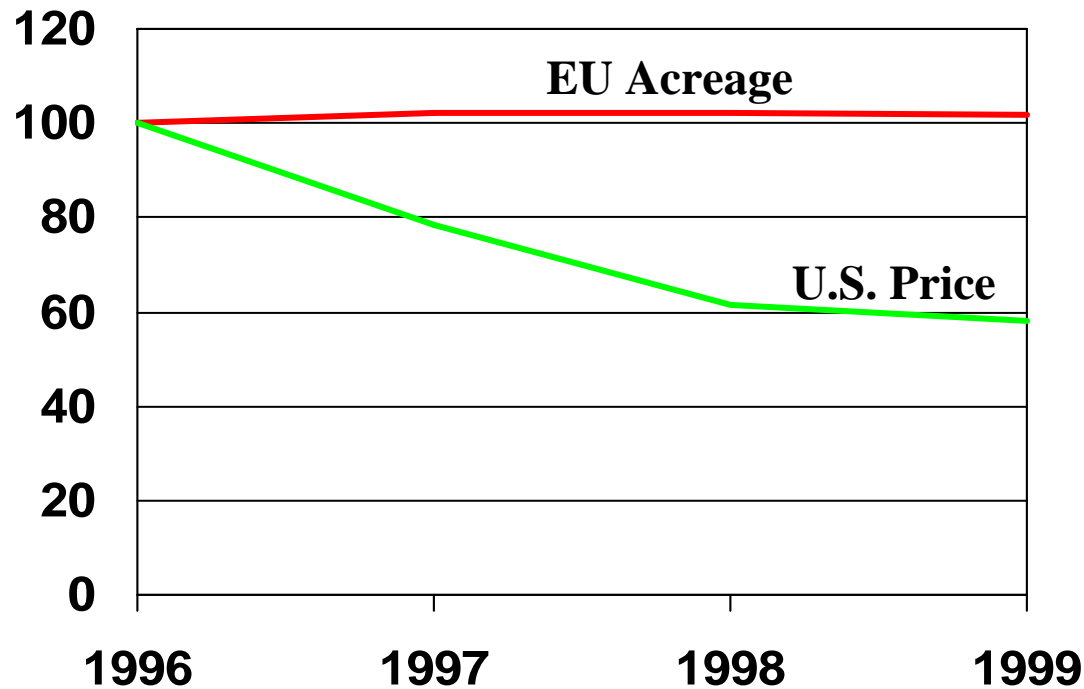
U.S. Soybean Complex Exports and Surplus Production



Comparison of Soybean Complex Ending Stocks

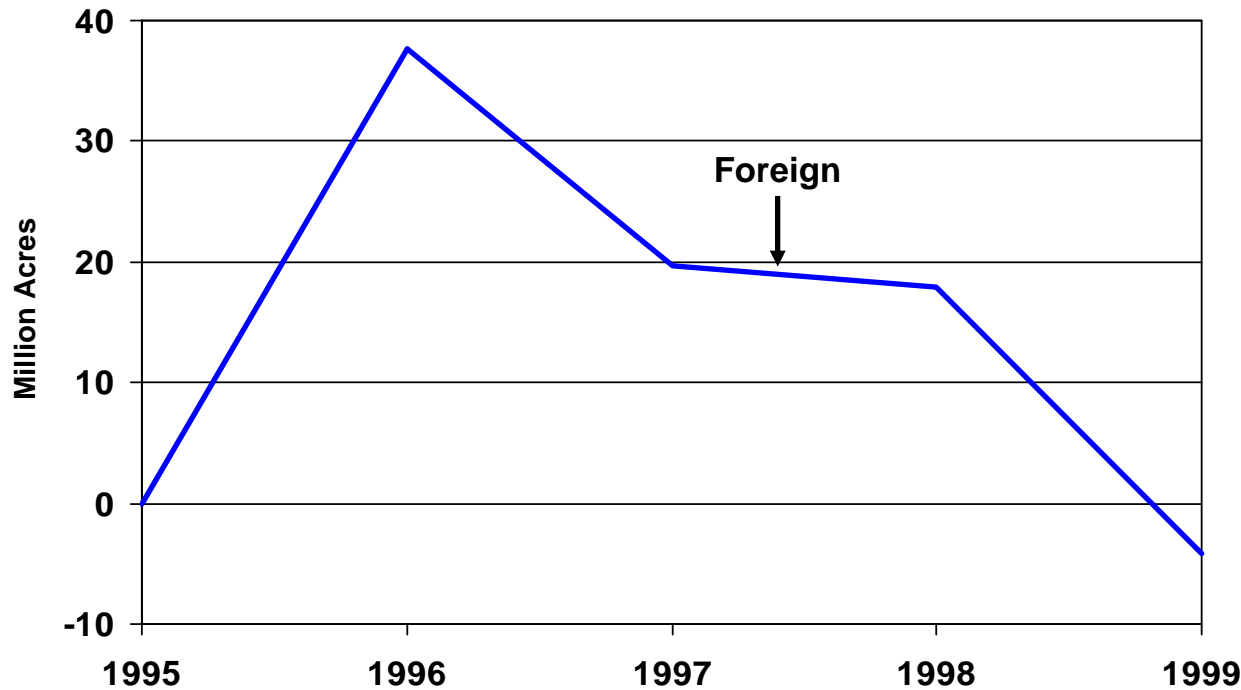


Wheat Area European Union and U.S. Price (1996=100)



Crop Acreage

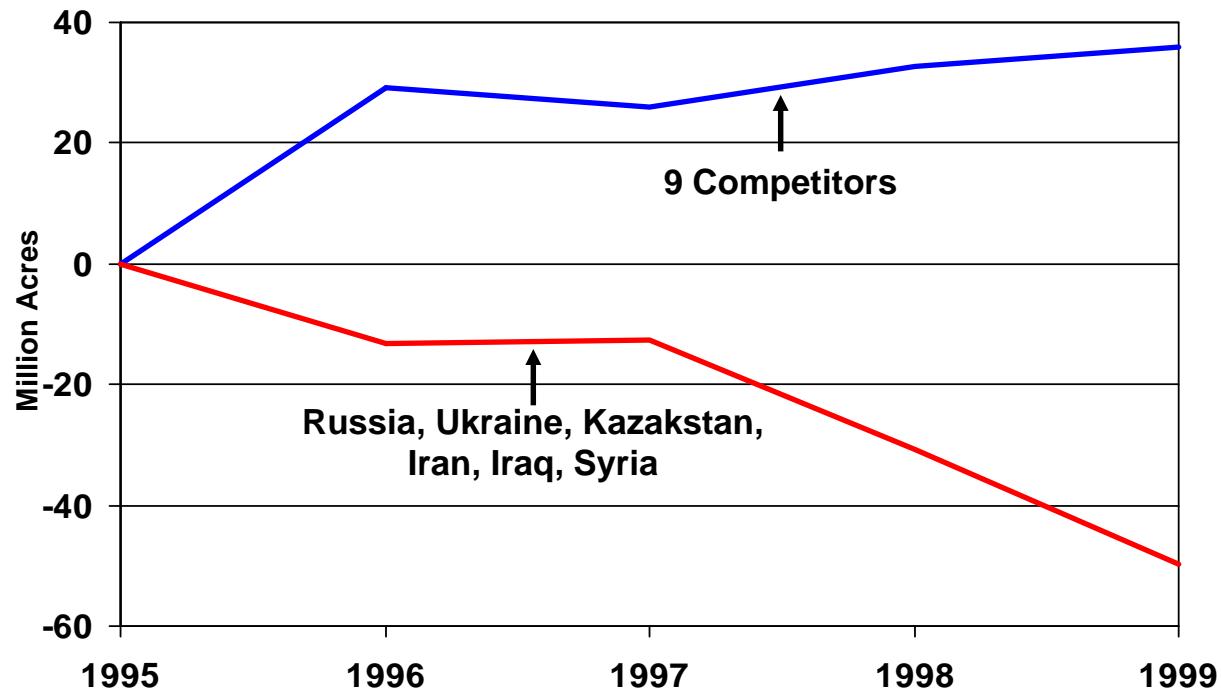
Some have cited the 1999 reduction in foreign harvested acreage as indicative of the benefits of eliminating set-asides



Gain or loss in foreign harvested acres when compared to 1995

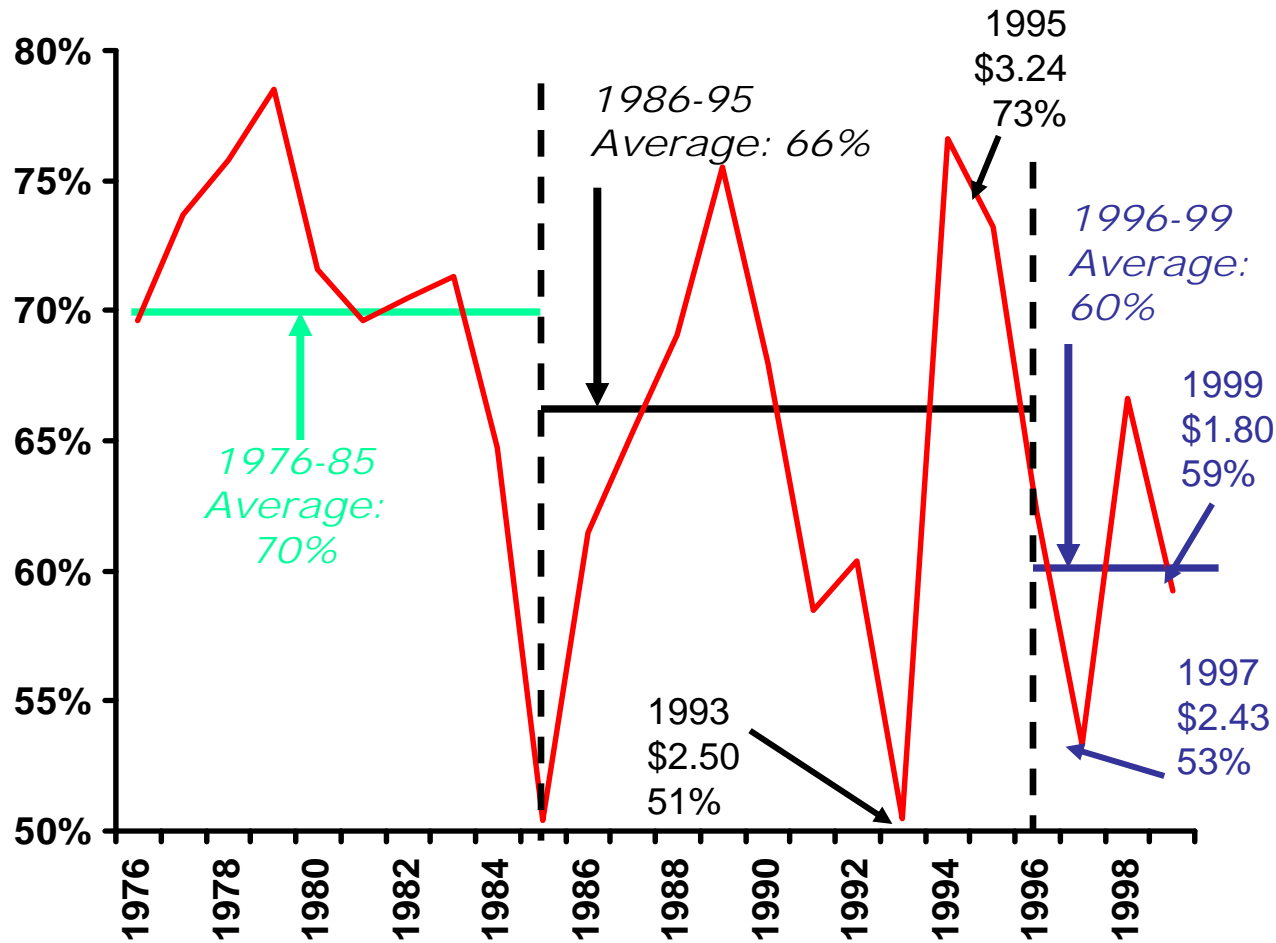
Crop Acreage

What countries did we hope would reduce their acreage when we eliminated set-asides?



Gain or loss in competitors' and a grouping of 3 former Soviet Union and 3 Middle Eastern countries' harvested acres when compared to 1995.

U.S. Share of World Exports



APAC Modeling System

- **Allows Alternative Export Growth Scenarios**
- **Allows Alternative Sets of Response Parameters**
- **Can Show Real-World Variability of Prices, Government Payment Exposure Caused by Randomness of Yields and Exports**

Some Example Alternatives

- **Continuation of Current Bill**
- **Farmer-Owned Reserve (FOR) Like Program**
- **Paid Land Diversion Program**

Continuation of Current Program Including Market Loss Assistance

- **Government provides payments if Net Farm Income falls below 43.1 billion \$.**
- **High budget exposure**
- **Hinders/Does not address supply adjustments.**
- **No limit on how low prices can fall**
- **Highest export volume – lowest export value (of three)**

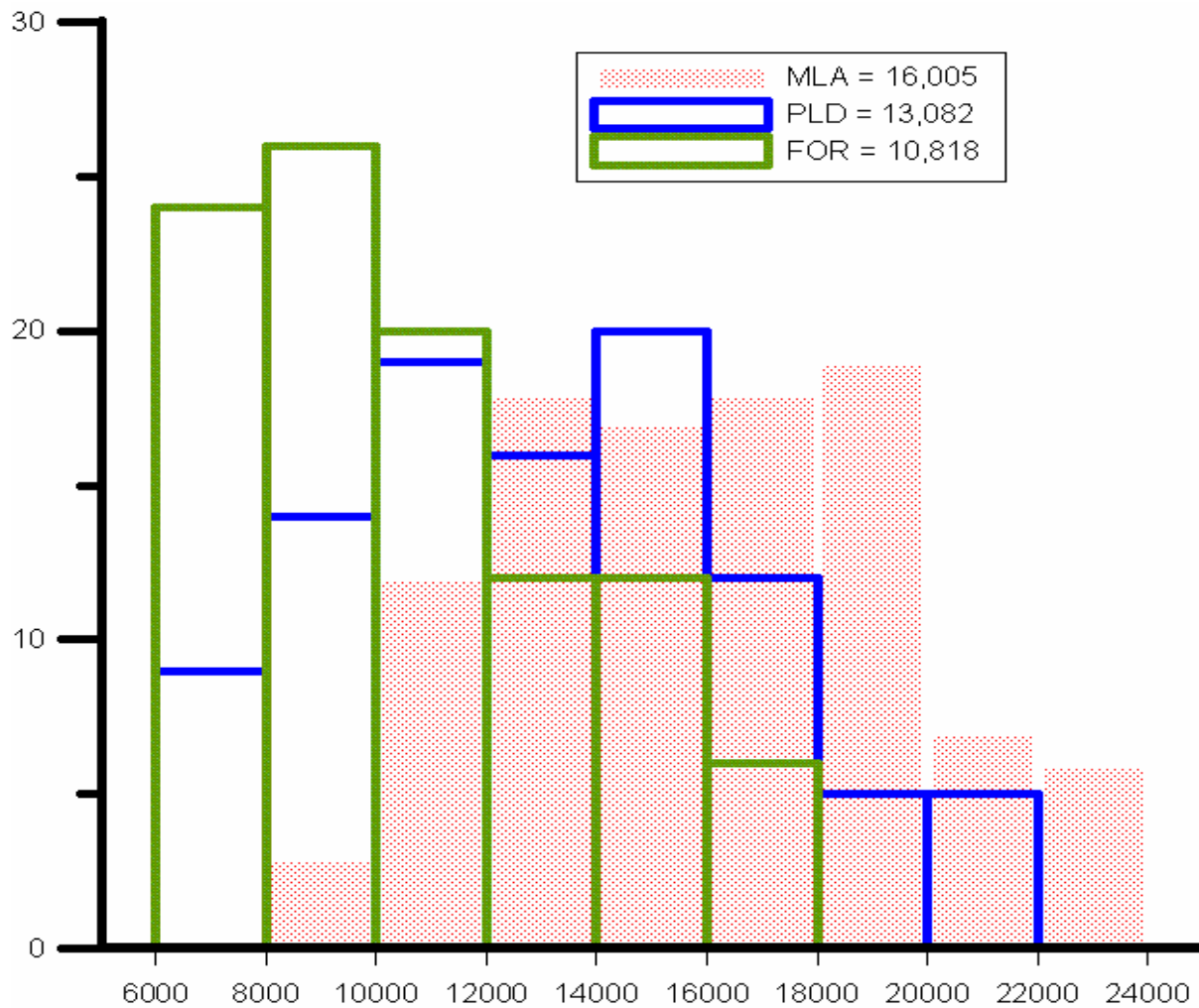
FOR Like Program

- Reduce price and income variability
- Farmers can not take advantage of extreme high prices, but reduced exposure in extreme low prices.
- Export volume may decrease, export value increases.
- No Net Farm Income floor
- Reduced budget exposure

Paid Land Diversion

- **Mandatory 10% paid land diversion program. Rates are “auction-based”.**
- **Takes land out of production**
- **Higher level of prices and income**
- **Export volume decreases but export value increases.**
- **Reduce government exposure**
- **No Net Farm Income floor**

Government Payments & NFI above \$ 43.1 billions 2002



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