

WHICH AMERICA WILL PRODUCE SOYBEANS?

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Executive Summary

- This presentation draws heavily from the article (handout), *The Emperor Has No Clothes; I'm a Lousy Golfer; and Brazil Has Soybeans*. This and other policy articles can be found in the policy section at the University of Illinois *farmdoc* website, www.farmdoc.uiuc.edu.
- Increased crop production, particularly soybeans, in South America has raised questions about the “competitiveness” of the U.S. soybean sector and its future role in the world market. Opinions about competitiveness and who will serve the export market are usually based on an absolute advantage principle where the low-cost provider prevails. However, two important points to keep in mind are:
 1. Absolute advantage, in itself, does not tell the whole story. Returns from alternative use of the land (e.g., corn production) determine the comparative advantage. Within a free-trade environment, production will be guided by comparative advantage. Even if the U.S. is the low-cost producer of soybeans (that is, it has an absolute advantage), Brazil may have the comparative advantage.
 2. Land rents are determined “residually” in the sense that they directly reflect the expected profit after all revenues and non-land costs are accounted for. It is not appropriate to include rents when assessing absolute advantage.
- Brazil may or may not have an absolute advantage in soybean production, but opportunity costs lead to a comparative advantage for soybeans in Brazil and for corn in the U.S..
- Although U.S. farmers will continue to meet domestic soybean needs as well as a large share of export market, there will likely be a partial shift in the U.S. away from soybeans and toward corn. A more interesting production outcome is the possible movement of Brazilian resources (land) into as well as out of production as crop prices change.
- The almost-certain continued growth in South American (Brazilian) soybean production creates a relatively low long-run price equilibrium for corn and soybeans, raising policy questions about where the “safety net” should be set.
- Another policy consideration stems from the fact that shifts toward a high-volume crop (corn) increases the benefits from inland waterway improvements.
- Finally, changes in production patterns are common, and should not be viewed as

inherently bad. Producers should (and will) pay attention to the market signals of change. Legislators should pay attention to the underlying causes of these signals.

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South American Production is Raising Questions about:

- “Competitiveness” of the U.S.
- Export market shares
- Price

Despite the Media Bites, the Real Take Home Messages are:

- “Competitiveness” is not just a matter of who has the lowest cost
 - Distinguish absolute advantage from comparative advantage.
 - Many of the cost comparisons between the U.S. and South America are misleading
- The U.S. will continue to grow a lot of soybeans for the domestic and export markets
 - But there will be continued economic incentive to shift away from soybeans and toward corn.
 - And South America will continue to capture more of the export market.

What I am NOT Saying

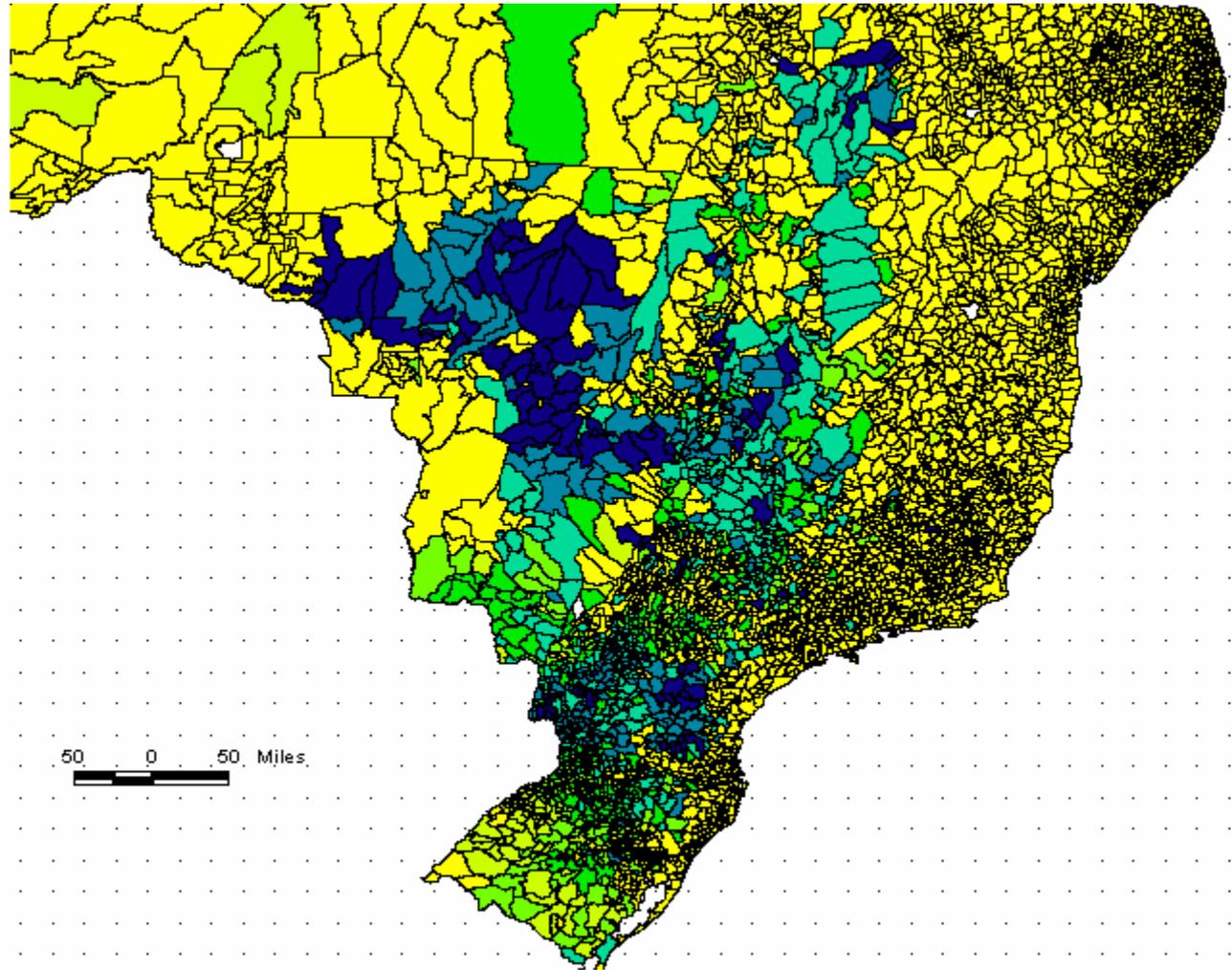
- Illinois farmers should quit growing soybeans
- Brazil's cost of production and marketing is less than the U.S. cost
- Brazil is more “competitive” than the U.S.

	1970		2001		Relative change over 30 years	
	Prod (mmt) a	Yield (bu/ac) b	Prod (mmt) c	Yield (bu/ac) d	Prod c/a	Yield d/b
Wheat						
U.S.	36.8	31	53.3	40	1.45	1.29
S. Amer.	8.8	18	23.6	36	2.68	2.00
World	310.8	22	582.7	40	1.87	1.82
Corn						
U.S.	105.5	72	241.5	138	2.29	1.92
S. Amer.	29.7	26	70.5	57	2.37	2.19
World	265.8	37	609.1	70	2.29	1.89
Soybeans						
U.S.	30.7	27	78.7	39	2.56	1.44
S. Amer.	1.7	18	69.0	39	40.6	2.2
World	43.7	22	176.6	35	4.04	1.59

WHY?

- Varieties
- No till
- Fertility
- Economic stability
- Opportunity cost of land

Brazil Soybean Yield



Are we “competitive?”

- When considering this question, there is often too much emphasis on:
 - Absolute advantage
 - Costs that include land

Absolute versus Comparative Advantage

- Dr. Doalot is:
 - The best heart surgeon in the world.
 - The fastest typist in the world.
- What is Dr. Doalot going to do for a living?

Absolute versus Comparative Advantage in Soybean Production

- Absolute: What is the monetary cost of growing and transporting beans from the U.S. versus Brazil to Rotterdam?
- Comparative: What is the opportunity cost of growing and transporting beans from the U.S. versus Brazil to Rotterdam? Or, what is highest return to land if not used for beans? 140 bu corn versus 70?

Misleading Cost

- Higher land rent or price often an effect of higher “competitiveness” as opposed to causing lower competitiveness.
- Based on expected returns (whether from market or government).
- Good example of how including land cost can lead to misleading conclusions about competitiveness.

USDA 1998 Bean Costs per Bushel

	U.S.	M. Grosso	Arg.
Non-Land Prod.	\$3.20	\$3.75	\$2.69
Transportation	<u>\$0.81</u>	<u>\$1.91</u>	<u>\$1.30</u>
	\$4.01	\$5.66	\$3.99
Land	<u>\$1.91</u>	<u>\$0.14</u>	<u>\$1.24</u>
TOTAL	\$5.92	\$5.80	\$5.23

Source: Schnepf, Dohlman, Bolling. "Agriculture in Brazil and Argentina: Developments and Prospects for Major Field Crops." USDA, November 2001

- Absolute advantage is about equal between U.S. and Argentina, and greater than Matto Grosso. In this (misused) sense, U.S. is “equally competitive” with Argentina and “more competitive” than Matto Grosso.
- But, this does not imply:
 - There is more incentive to grow beans in U.S. than in Brazil (what’s the opportunity cost?)
 - That Brazil will not continue to capture an increasing share of the world market.
- A surgeon can have an absolute advantage in typing, but ...

Long Run Production Implications

- Continued soybean production in the U.S.
- But with increased incentive for 2- or 3-year continuous corn, causing a relative shift away from soybeans toward corn
- The possibility that land in South America (particularly Brazil) can move in to as well as out of production?

Price Implications

- Demand side – driven by population and income
- CBO and FAPRI long run price projections made last spring
 - Start around \$4.50, breaking \$5 four to six years later
 - Weather of 2002 does not change the long term fundamentals
- Recent evidence

Policy Implications

- If the loan rate is a safety net, where is the tight rope?
- Relative relationship between corn and soybean loan rates are better now, but the absolute levels may be in question.

Figure 2. South Central Illinois Corn Price

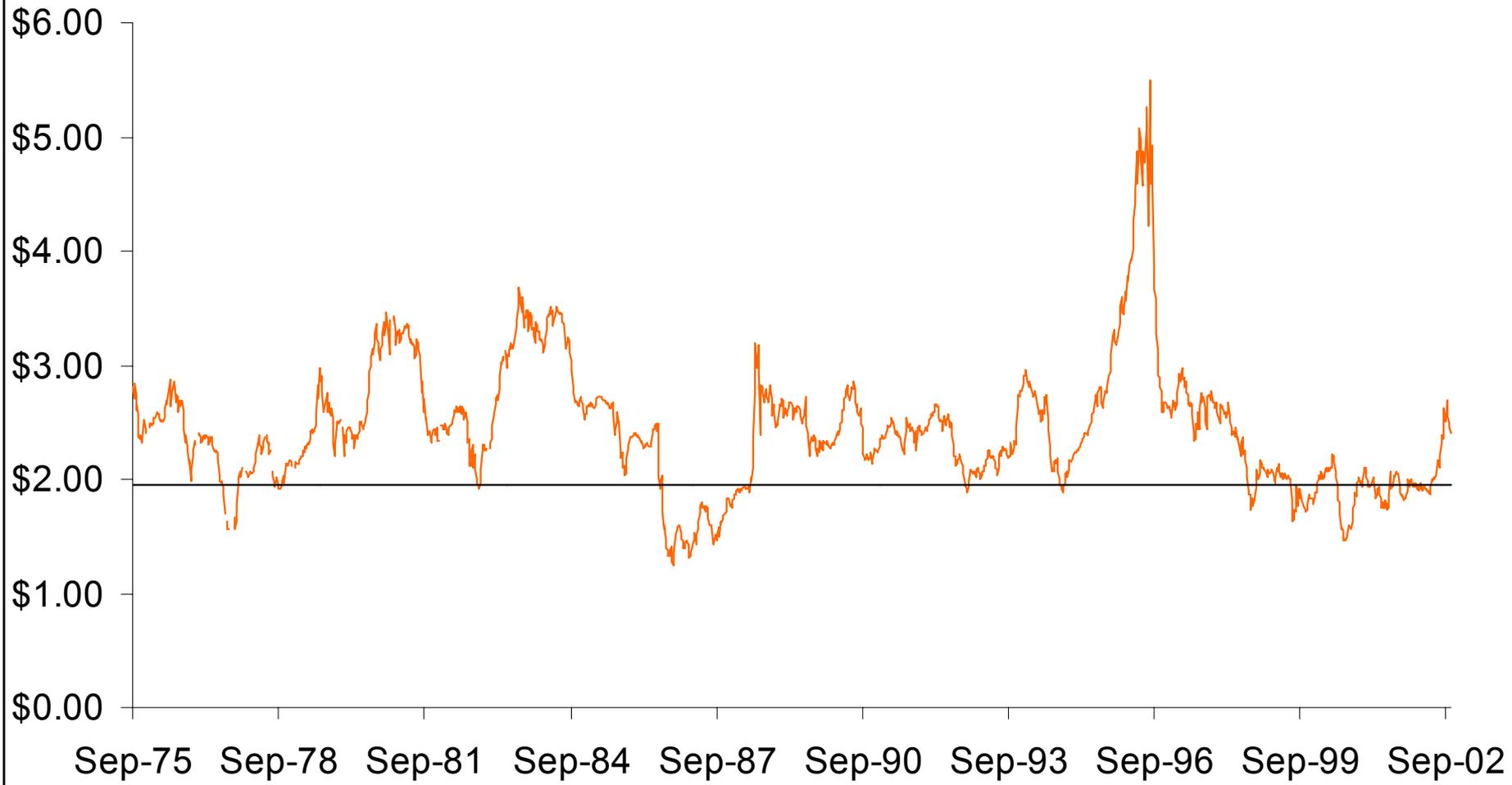
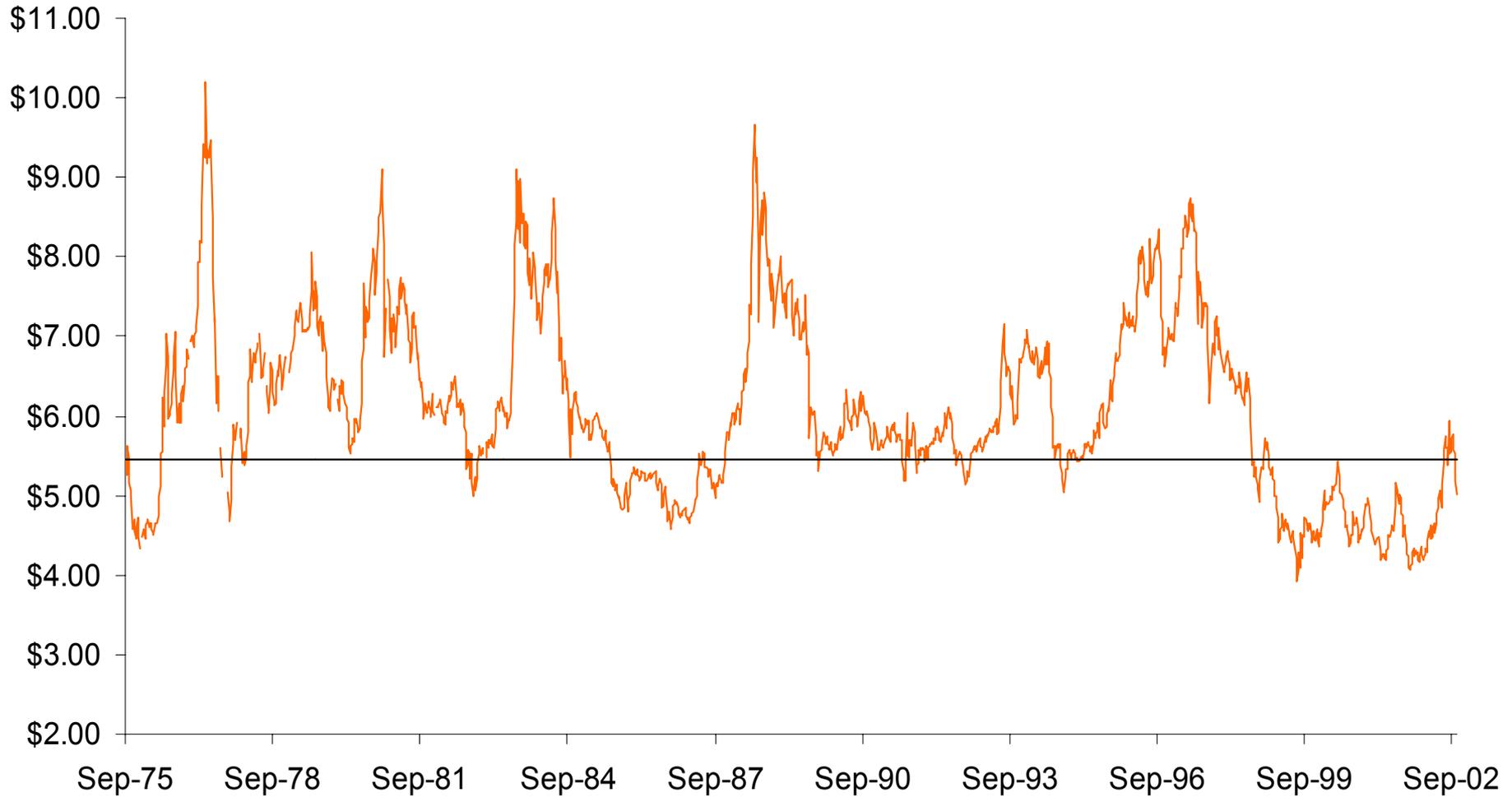


Figure 1. South Central Illinois Soybean Price



Policy Implications, con't.

- Transportation infrastructure
 - Lock and dam improvements often linked to our need to “stay competitive” in soybean production.
 - Inland waterway improvements lead to increased absolute advantage in both corn and soybeans, but from a comparative advantage standpoint, would encourage more U.S. corn acres at the expense of soybeans (140 bu/ac versus 40).
 - Interesting paradox

The Sky is not Falling

- Production shifts are common
- Although usually not driven in the U.S. by substitution elsewhere
- Producers should (and will) pay attention to the market signals
- Legislators should pay attention to why these signals change