

# Organic Agriculture .....



How Viable / Still Viable?

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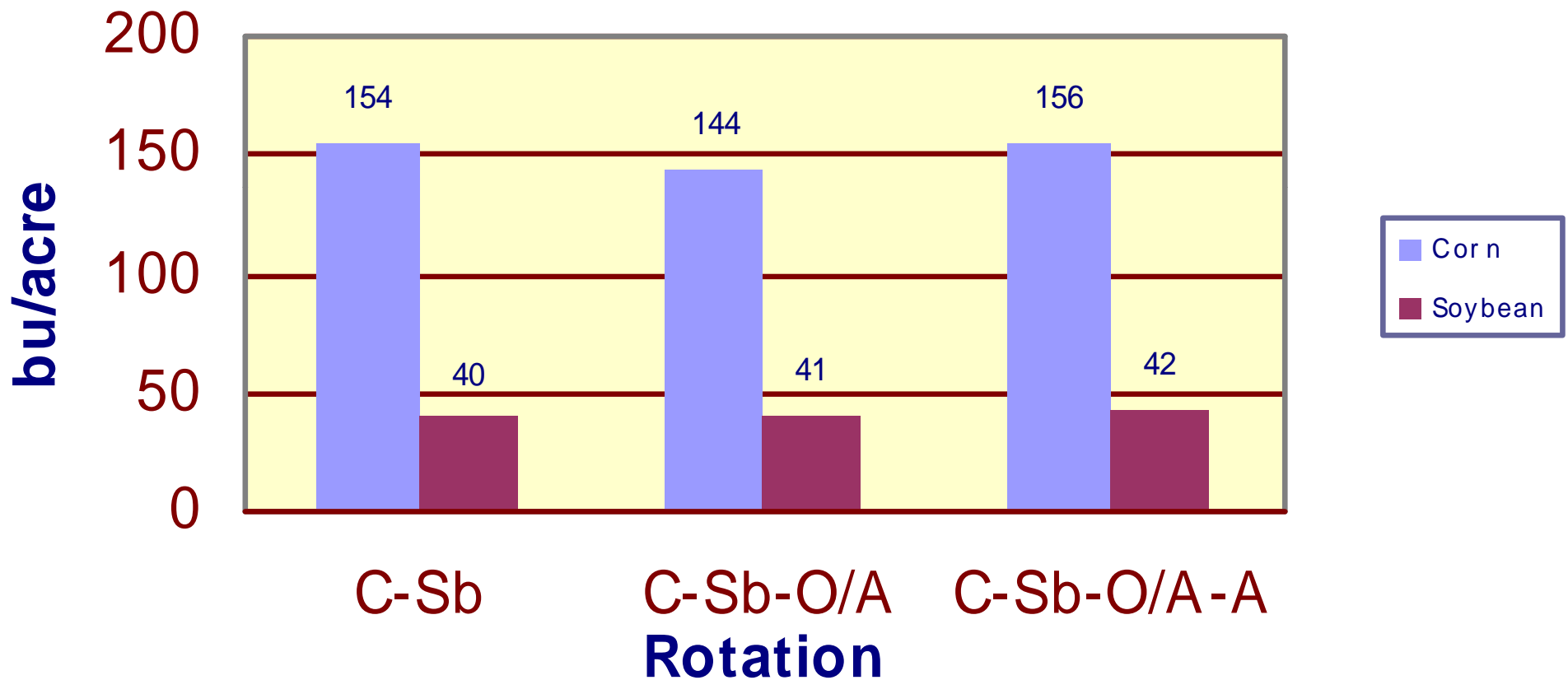
# Session Agenda

1. Economics of organic agriculture.
  - a) Neely-Kinyon long-term rotation study.
  - b) Organic budgets.
  - c) 2010 updates.
2. Economics of transitioning.
3. Vegetable economics.

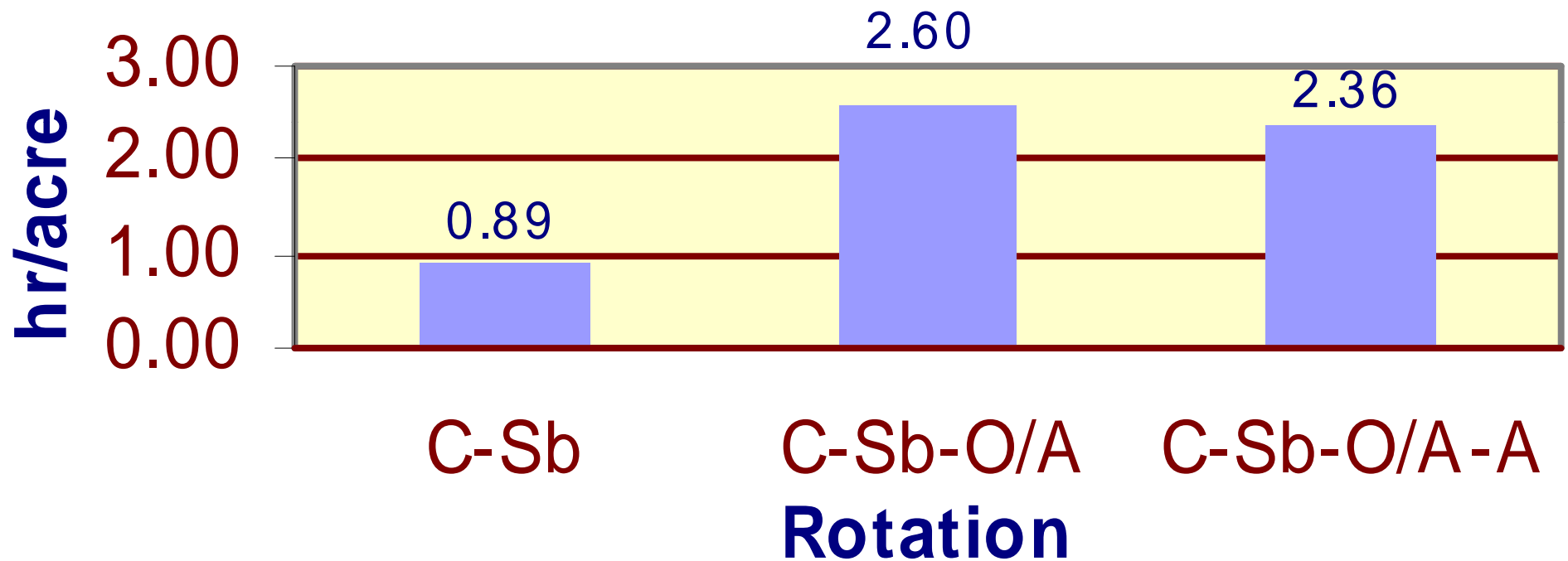
# Neely-Kinyon Organic Study

- The Neely-Kinyon Research Farm is located in SW Iowa (Greenfield)
- Focus on comparing Three Production Systems
  - Conventional corn-soybean rotation
  - Organic corn-soybean-oat/alfalfa
  - Organic corn-soybean-oat/alfalfa-alfalfa
- Organic cropping systems were established in 1998; certified organic in 2000.

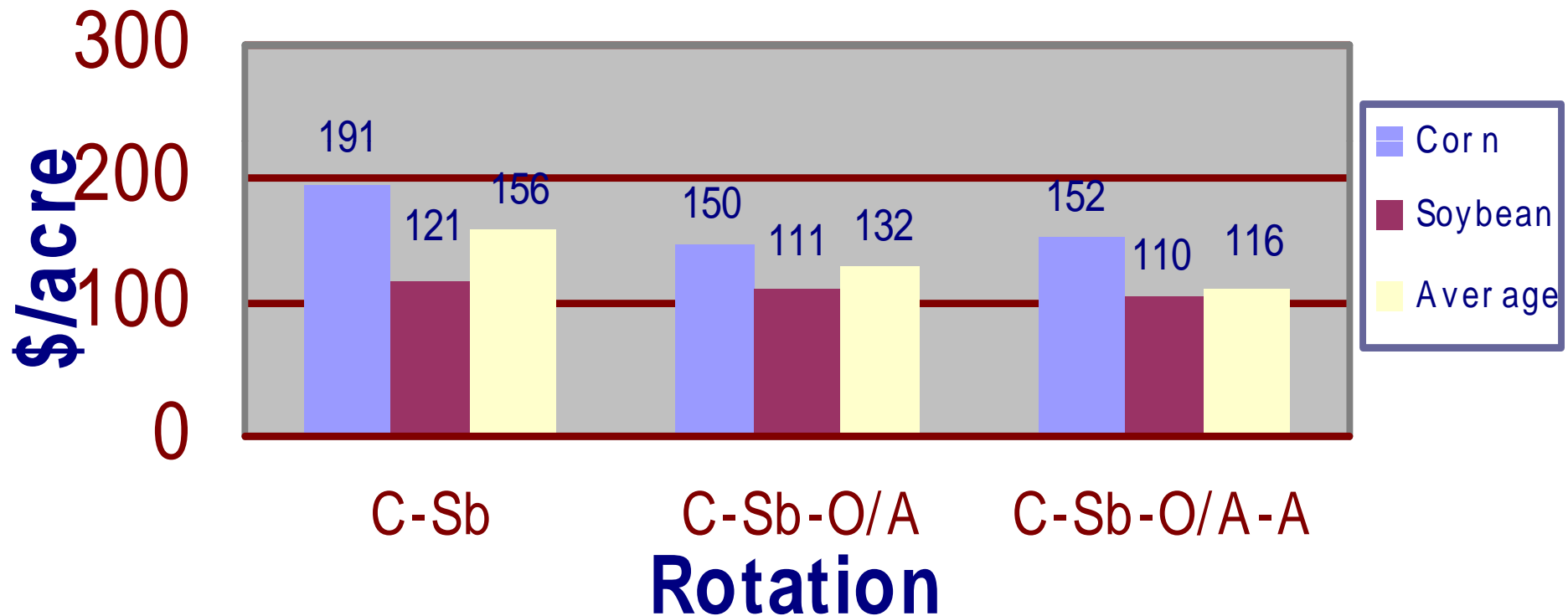
# Yields, by Crop and Rotation, 2000-2004



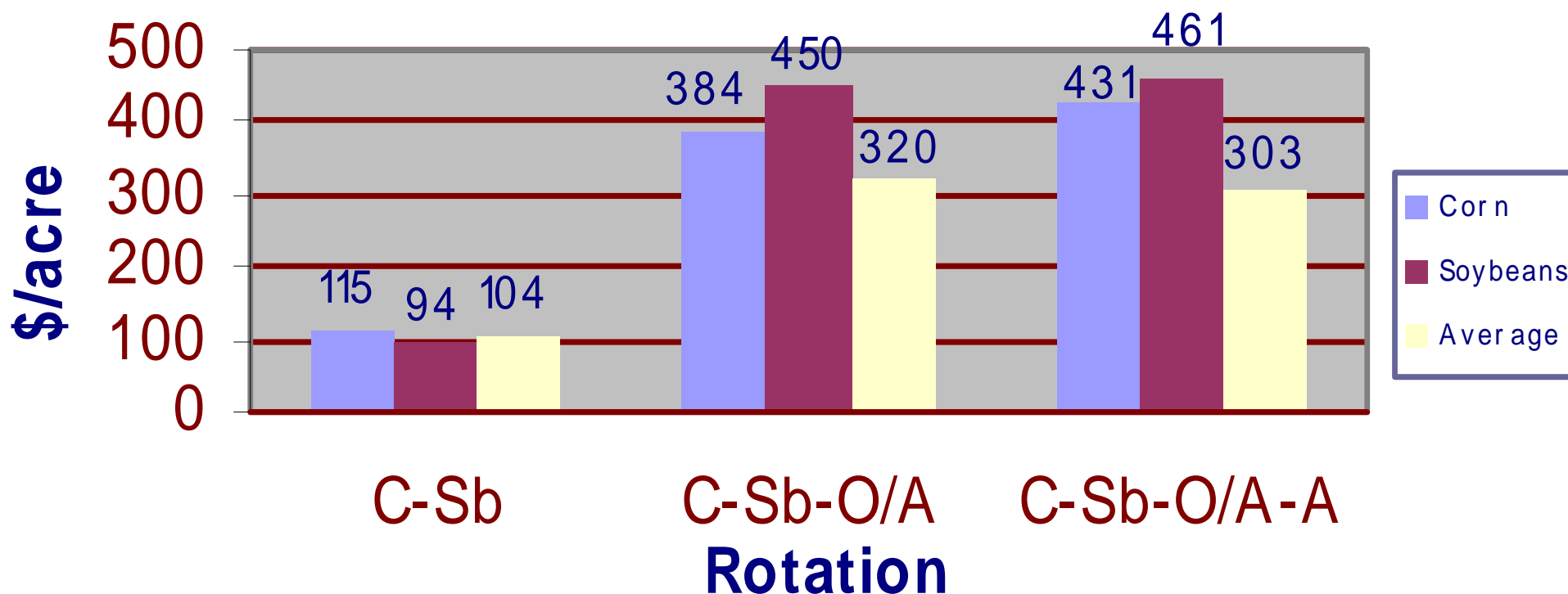
# Estimated Fieldwork, by Rotation, 2000-2004



# Production Costs by Crop & Rotation, 2000-2004



# Returns to Land & Management, by Crop and Rotation, 2000-2004



Iowa average prices used per year; minimum price was the loan rate.

# Yes, but...

*That's a research farm and doesn't reflect my farm. Besides the conventional C-Sb isn't really conventional.*

## **Response:**

- Developed the Iowa Organic Budgets (Fm-1876) to represent state costs and returns.
- Revised Iowa Crop Production Budgets (Fm-1712) to use as a comparison.



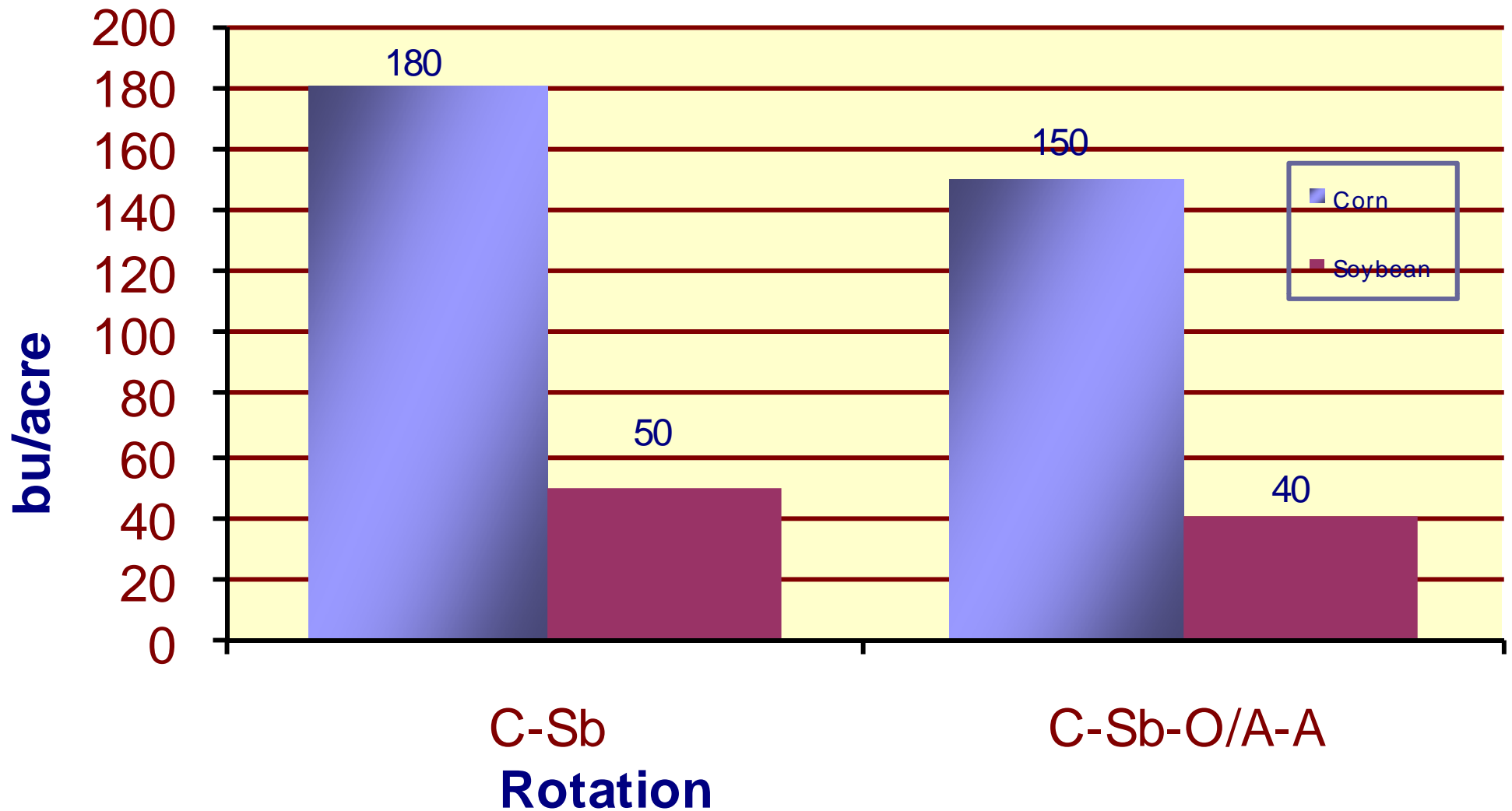
# Yes, but ...

- With the ethanol boom and higher corn and soybean prices, organic production no longer has an economic advantage to conventional agriculture. Besides conventional corn has higher yields than the Extension publication shows.

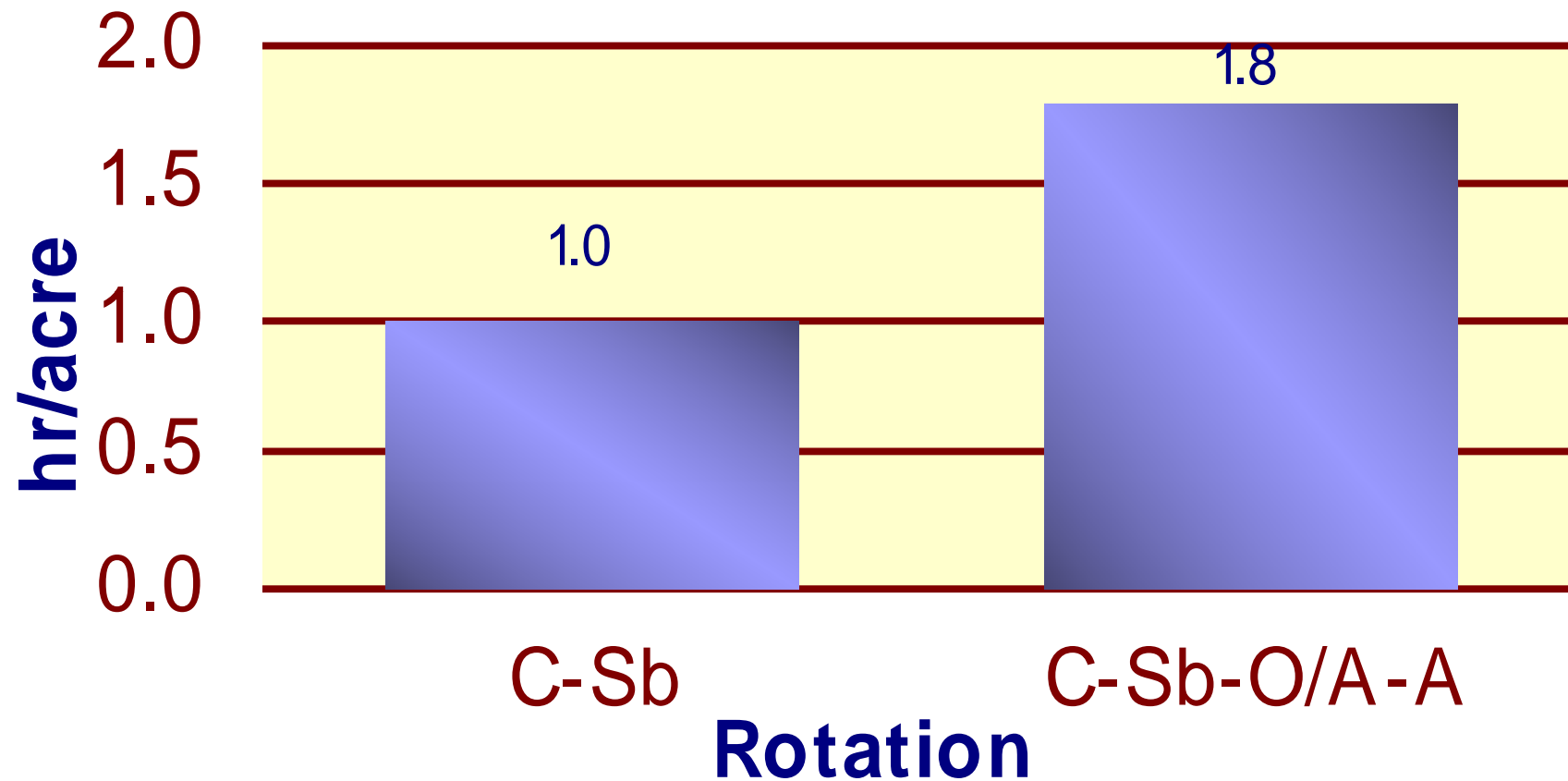
## **Response:**

- Published Economic Analysis of Three Iowa Rotations PMR 1001.

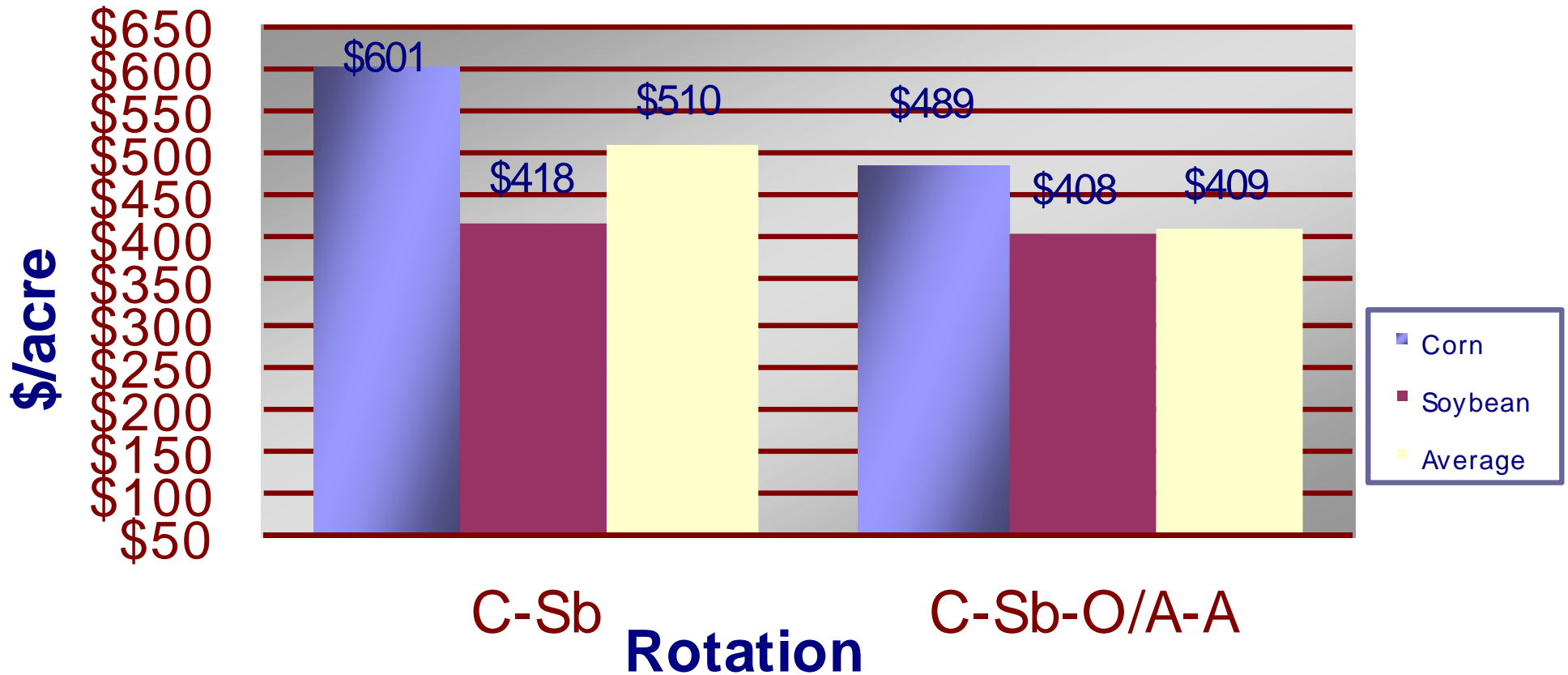
# Yields by Crop and Rotation



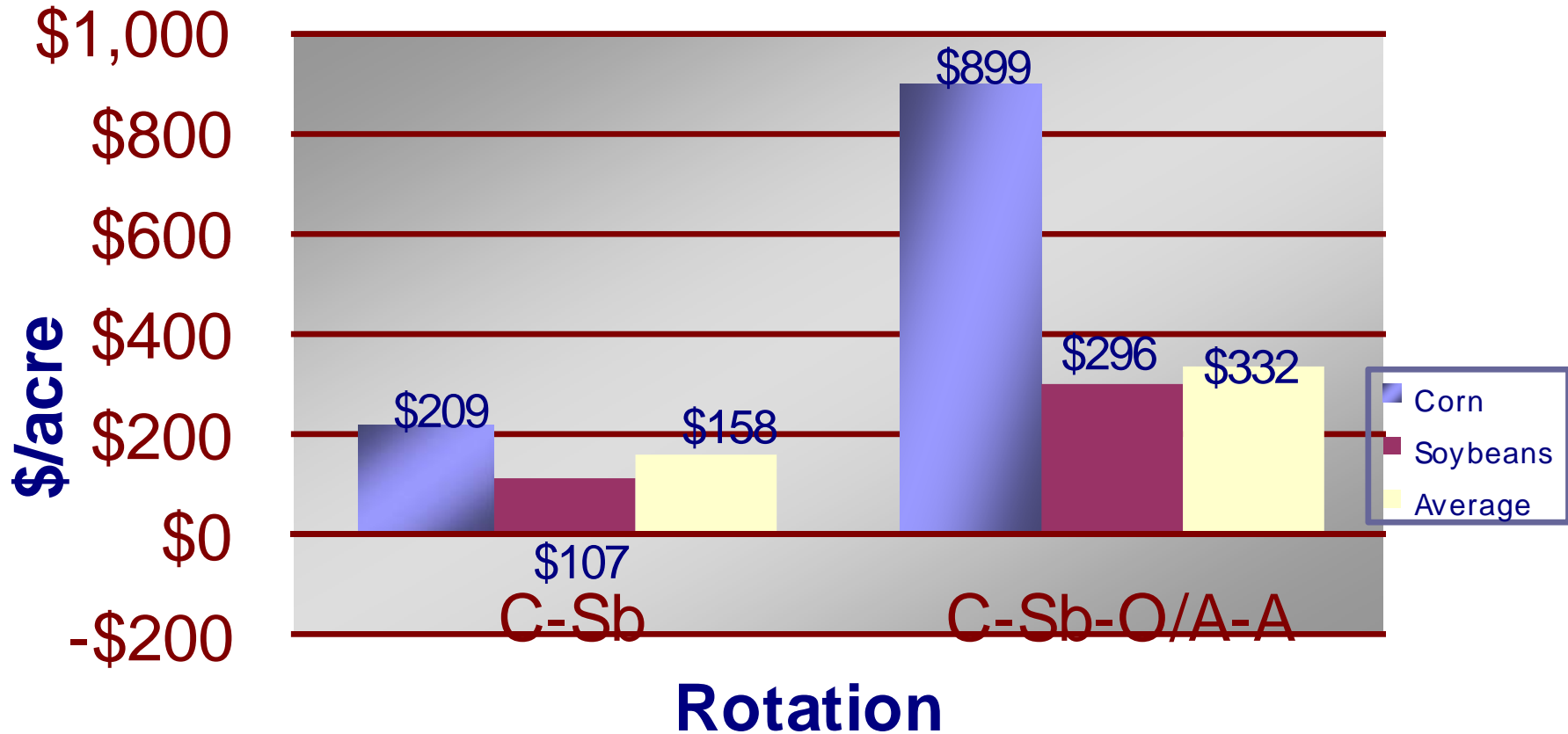
# Estimated Rotation Fieldwork



# Production Costs by Crop/Rotation - 2008



# Returns to Management - 2008



Prices: \$4.50, \$9.25; \$10.50, \$17.60, \$4.00, \$95

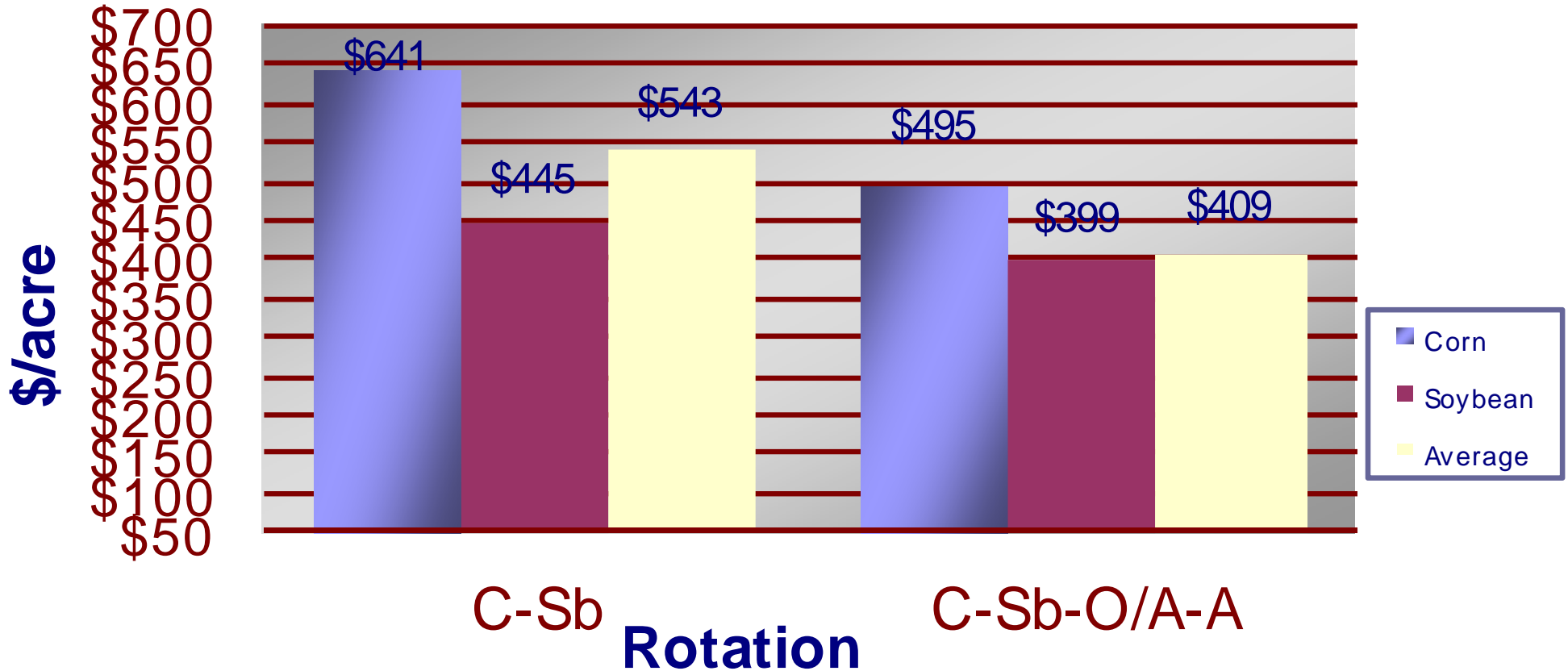
# Yes, but ...

- Organic markets are currently low compared to the conventional markets (particularly corn).

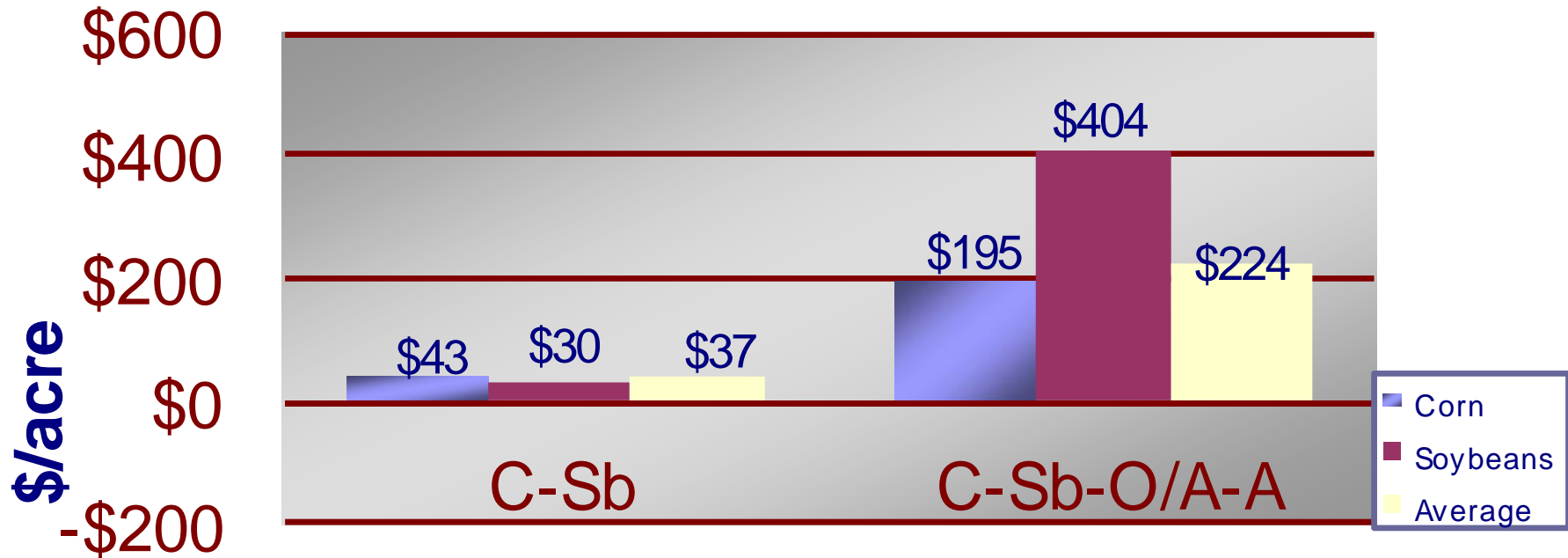
## **Response:**

- Updated as of Sept 2010.

# Production Costs by Crop/Rotation - 2010



# Returns to Management - 2010



## Rotation

Prices: \$3.60, \$4.60; \$9.50, \$20.09, \$3.70, \$140



# Yes, but...

- Government program payments aren't included.
- Answer:
  - At current higher prices, there are no government program payments except direct payments and those are the same regardless of what is grown.

# Bottom Line

- **In general**, well-managed organic rotations are more profitable than well-managed conventional corn-soybean rotations...
  - with or without premiums
  - around the state
  - with or without government program payments.
- Given high corn prices, organic systems that lose all their price premiums will be less profitable than the conventional system.

# Bottom Line

- However, as fertilizer, pesticides, seed, etc. increase in cost, organic systems may be economically competitive even without price premiums.
- Organic production is the classic risk/reward situation. You risk profitability during the transition to receive much higher returns once the system is up and running.

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# Questions

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## Questions on Profitability of Organic Production?

# Organic Agriculture .....



Making the transition...

# Organic Transition Economics

- Step 1: develop a transition production plan...

Example – You inherited a 240-acre farm. It is currently in a corn-soybean rotation. You want to transition into organics. You decide to transition field-by-field.

# Field Plan

- What would your field plan look like?
- Would you go into all oats or try to start the rotation immediately?
- What changes would need to be made to the budgets for a whole-farm transition?

# Field Plan

For simplicity,

Assume you can divide the 240 acres into 4, 60-acre fields. And you will be producing conventional and transitioning crops on the same farm.



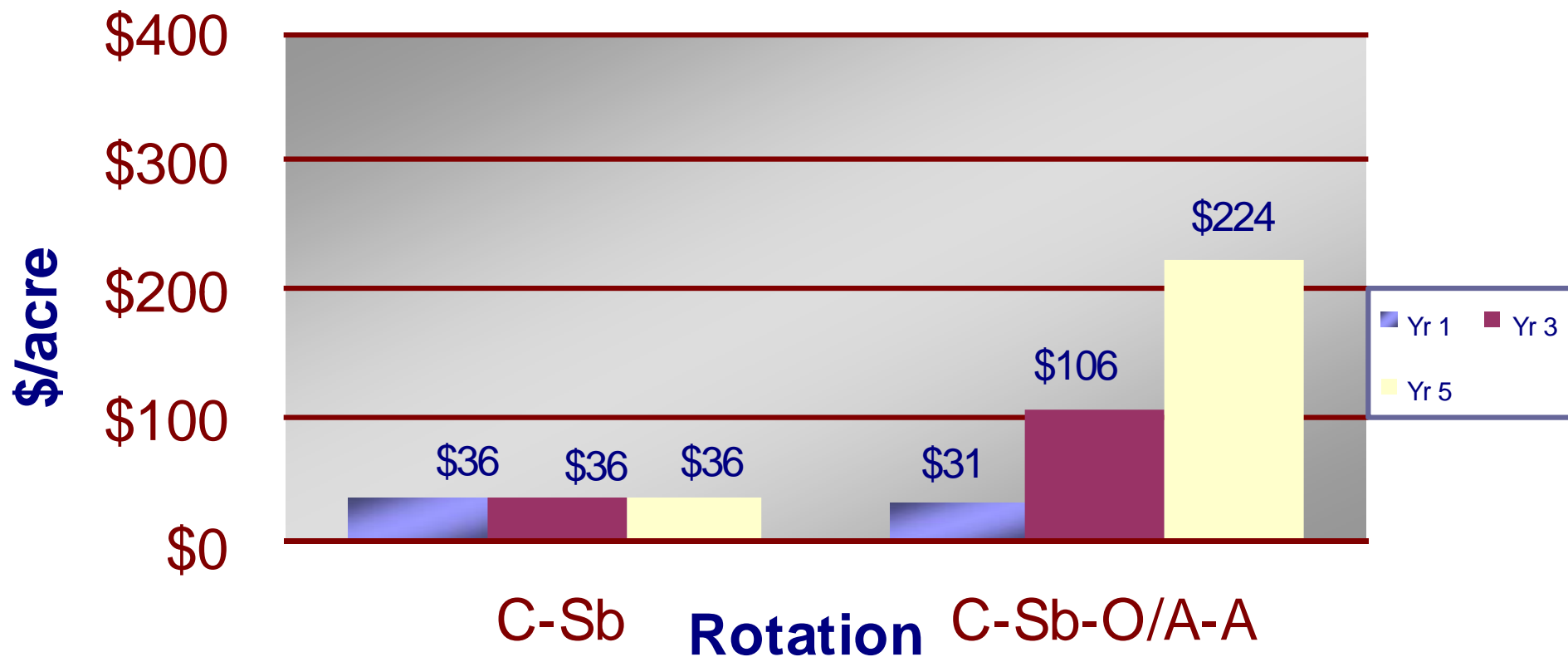
# Field Plan

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Field 1	Conv Corn	Conv Sb	Conv Corn	Trans Oats	Trans Alfalfa
Field 2	Conv Sb	Conv Corn	Trans Oats	Trans Alfalfa	Organic Corn
Field 3	Conv Corn	Trans Oats	Trans Alfalfa	Organic Corn	Organic Sb
Field 4	Trans Oats	Trans Alfalfa	Organic Corn	Organic Sb	Organic Oats

# Field-by-Field Transition

- You have your field plan, but will it be profitable?
- Step 2: To determine profitability, let's shift to a budget-driven decision tool...

# Returns to Management



Prices: conventional - organic prices once certified

# Whole-Farm Transition

- You can put your assumptions into the decision tool and see what happens...
- Tool is at:  
<http://www.extension.iastate.edu/agdm/crops/xls/a1-26organictransition.xls>
- So what happened?
  - How profitable?
  - What risks were involved?
  - Which transition made more sense to you?

# Questions

Questions on the economics of  
transitioning row crop  
production systems?

# Pricing for Profit .....



Making sense out of the  
mayhem...

# Profitability Key

- So what is the key to achieving profitability and running a successful organic produce business?
- My view: Understanding Profit Margins and Price Mark-ups and Pricing Accordingly.

# Profit Margins

- So what are profit margins?
- Profit margins are the difference between what you sell a product for and what the total cost of the product was to produce and market that product.
- How to determine costs? Develop an enterprise budget.



# What is an Enterprise Budget?

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- Estimate of costs and returns to produce a product.
- For producers who grow a large number of different products.
  - Develop budgets for those products that contribute the most to business goals.
- The process is the same for all scale of farming operations.

<b>CARROTS: 100' x 4' bed - IOWA</b>				
	<b>Quantity</b>	<b>Unit</b>	<b>\$/Unit</b>	<b>Total</b>
<b><u>RECEIPTS</u></b>				
Carrot sales	170	lbs	0.80	<u>\$136.00</u>
<b>TOTAL RECEIPTS</b>				<b>\$136.00</b>
<b><u>PLANTING YEAR</u></b>				
<b>Supplies</b>				
Seed - cover crop	0.75	lbs	0.60	0.45
Seed	3	packet	1.50	4.50
Burlap	3	bags	1.80	5.40
Fertilization	10	lbs	0.15	1.50
<b>Labor</b>				
Cover crop	0.05	hrs	10.00	0.50
Bed preparation	0.20	hrs	10.00	2.00
Fertilizer spreading	0.10	hrs	10.00	1.00
Planting, laying burlap	0.20	hrs	10.00	2.00
Irrigation set up	0.25	hrs	10.00	2.50
Weeding	0.75	hrs	10.00	7.50
Interest on Preplant Costs	27.35	dollars	0.035	<u>0.96</u>
<b>TOTAL PREHARVEST COSTS</b>				<b>\$28.31</b>
<b><u>HARVEST &amp; DELIVERY</u></b>				
Bags (1 lb)	170	bags	0.03	5.10
<b>Labor</b>				
Harvest labor	3.50	hrs	10.00	35.00
Packaging	0.30	hrs	10.00	<u>3.00</u>
<b>TOTAL HARVEST &amp; DELIVERY COSTS</b>				<b>\$43.10</b>
<b><u>TOTAL VARIABLE COSTS</u></b>				
per crop year				\$71.41
per lb				0.42
<b><u>OWNERSHIP COSTS (ANNUAL)</u></b>				
Irrigation system				1.14
Machinery				7.14
Land				<u>2.29</u>
<b>TOTAL OWNERSHIP COSTS</b>				<b>\$10.57</b>
<b><u>TOTAL COSTS (ANNUAL)</u></b>				
per crop year				\$81.98
per lb				0.48
<b>RETURNS OVER VARIABLE COSTS, ANNUAL</b>				
				\$64.59
<b>RETURNS OVER TOTAL COSTS, ANNUAL</b>				
				\$54.02

# Types of Decisions

- Now that you developed an enterprise budget, what do you do with it?
- You can use it for pricing, but you can also use it to make changes to your:
  - Production practices
  - Product mix

# Changing Production Practices

- Use the budgets to calculate break-even prices and yields.
  - For example, cost per lb. of carrots sold was \$0.48.
  - Compare this number to other producers or industry standards to determine where costs are different and why.

# Changing Production Practices

- A second reason – track key costs.
  - Carrot example, \$54.04 (or 66%) of the total production cost is labor.
  - Question - can labor be lowered without reducing yields (i.e., can labor be more efficient)?
  - Supplies is a small percentage (14%) of total production costs, a 10% reduction in costs won't affect total production costs significantly. Don't spend time on small items...

# Product Mix

- Enterprise budgets allow for a comparison of profitability and labor usage among the various crops grown.
- For example, carrot returns over total costs was \$54.02. Labor usage was 5.35 hrs. Returns over total cost per hour was \$10.10.

# Product Mix

	Returns over Total Costs	Hours of Labor	Returns over Total/Hr
<b>Asparagus</b>	<b>\$ 35.47</b>	<b>2.95</b>	<b>\$ 12.02</b>
<b>Basil</b>	<b>\$ 164.19</b>	<b>6.90</b>	<b>\$ 23.80</b>
<b>Carrots</b>	<b>\$ 54.02</b>	<b>5.35</b>	<b>\$ 10.10</b>
<b>Cherry Tomatoes</b>	<b>\$ 181.11</b>	<b>11.20</b>	<b>\$ 16.17</b>
<b>Eggplant</b>	<b>\$ 85.02</b>	<b>6.45</b>	<b>\$ 13.18</b>
<b>Specialty Green Beans</b>	<b>\$ 140.27</b>	<b>18.25</b>	<b>\$ 7.69</b>
<b>Garlic</b>	<b>\$ 43.89</b>	<b>7.15</b>	<b>\$ 6.13</b>
<b>Greens</b>	<b>\$ 102.90</b>	<b>2.80</b>	<b>\$ 36.75</b>
<b>Heirloom Tomatoes</b>	<b>\$ 547.21</b>	<b>11.20</b>	<b>\$ 48.86</b>
<b>Potatoes</b>	<b>\$ 61.65</b>	<b>5.10</b>	<b>\$ 12.09</b>
<b>Red Raspberries</b>	<b>\$ 131.50</b>	<b>6.15</b>	<b>\$ 21.38</b>
<b>Snow Peas</b>	<b>\$ 58.45</b>	<b>7.65</b>	<b>\$ 7.64</b>
<b>Strawberries</b>	<b>\$ 55.46</b>	<b>1.55</b>	<b>\$ 35.78</b>

# Product Mix Summary

- Labor should be considered a scarce resource - limited number of hours for any farming operation.
- Analyze not only returns over total costs, but also returns over total costs per hour.
- Some products with lower returns over total costs may have higher returns over total costs per hour because of low labor requirements.



# Back to Profit Margins

- So if I sell tomatoes for \$1.50 per lb. that cost me \$0.38 per lb. to produce, what was my production margin?
- \$1.12 per lb.
- How many tomatoes do I want to grow and sell at that margin?
- Am I forgetting anything (hint: any costs missing)?

# Transaction or Marketing Costs

- Transaction costs are those costs associated with the marketing and delivery of the product from the farm to the customer.
- Transaction costs include post-harvest handling, packaging, and storage, as well as the time to sell, invoice, and deliver the product.

# Example

- Two markets per week for 20 weeks.
- Labor – 2 people, 6 hrs per market per person, \$12 per hour.
- Vehicle – 80 mile roundtrip @ \$.50/mile.
- Supplies and misc - \$20 per week.
- 800 lbs of tomatoes taken to market; 95% sold (760 lbs).

# Example

Vehicle expenses @ \$.50/mi, 3,200 miles	\$1,600
Labor - 2 people @ 12hr/wk, 20wks, @\$12/hr	\$5,760
Supplies (bags, other supplies, misc.) @ \$20/wk	\$ <u>400</u>
Total transaction costs for the season	\$7,760
Total transaction costs allocated to tomatoes (percent of total sales) – 15%	\$1,164
Total transaction costs/lb sold (760 lbs sold)	\$1.53

# Total Cost

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Production cost per pound	\$ 0.38
Transaction cost per pound	\$ <u>1.53</u>
Total cost per pound	\$ 1.91

# Back to Margins

- So what was the price of the tomatoes?
  - What margin or mark-up would I get?
  - What should I do?
- 
- NOTE: This procedure should be repeated for each marketing outlet used.

# Back to Profit Margins

- So if I sell my tomatoes for \$1.50 per lb. and they cost me \$1.91 per lb. to produce and market, what was my profit margin?
- -\$0.41 per lb.
- How many tomatoes do I want to grow and sell at that margin?

# Back to Profit Margins

- Can I change my production practices?
  - Is it possible to lower costs of production without affecting yields or increase yields without increasing costs?
- Can I change my product mix?
  - Is it possible to focus on higher margin products ?
- Can I change my marketing outlets?
  - Is it possible to find a higher margin outlet?
- Can I raise my price?



# Can I Change My Price?

- To better understand setting a price, let's look at:
- Price mark-ups
- Gross margins

# Price Mark-Ups

- Price mark-up is the desired percent of return to be added to the break-even cost of the product.
- Example – if you want a 75% mark-up and the product costs \$2 per pound, your price would be \$3.50 per pound ( $\$2 * 1.75$ ).
- Wholesalers general mark-up products 50% and retailers 100%.

# Price Mark-Up Example

- So if the grocery store is selling tomatoes for \$2.00 per lb. and they usually get a 100% markup for their produce, what price would they pay me for my product?
- $\$2.00 / (1 + 1.00) = \$1.00$  per lb.

# Gross Margins

- Gross Margin is the percent of profit desired to be included in the product price.
- Example – You want a 35% margin and the break-even price is \$2 per lb. You would sell the product for \$3.08 ( $\$2/.65$ ).
- Margins are used throughout the food industry – natural food stores benchmark is about a 35% margin.

# Gross Margin Example

- So if the natural food store is selling tomatoes for \$3.00 per lb. and they usually get a 35% margin for their produce, what price would they pay me for my product?
- $\$3.00 * .65 = \$1.95$  per lb.

# Pricing for Profit

- Tomato total costs is about \$2.00 per lb.
- 75% mark-up price is \$3.50
- 30% margin price is about \$3.10
  
- What does the market tell you prices can be?  
What is your competition doing, what are your customers (or prospective customers) telling you they are willing to pay, what are your costs?

# Summary

- Although pricing needs to take into consideration competition and customers' willingness to pay...
- Profit margin can be consistently obtained only if production and transaction costs are known.

# Resources

- Wisconsin Local Food Marketing Guide.  
[http://www.datcp.state.wi.us/mktg/business/business\\_resources/pdf/MarketingGuide/CompleteBook.pdf](http://www.datcp.state.wi.us/mktg/business/business_resources/pdf/MarketingGuide/CompleteBook.pdf)
- The following from me...
  - Iowa Vegetable Production Budgets
  - Developing Enterprise Budgets
  - Using Enterprise Budgets to Make Decisions
  - Pricing for Profit



# Resources

- Determining Prices for CSA Share Boxes
- Choosing Among Alternatives
- All can be found at the Ag Decision Maker website:

<http://www.extension.iastate.edu/agdm>

- Look under Author or Specialist for details on publications and/or presentations.

# Resources

- Building a Sustainable Business  
<http://www.misa.umn.edu/vd/bizplan.html>
- ATTRA <http://www.attra.org/>
- Ag Marketing Resource Center  
<http://www.agmrc.org/>
- And... someone that has gone through the process already

# Questions.....

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Any questions or comments?

***Thank You for This Opportunity!***

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