

GRAIN MARKETING: ARE FARMERS REALLY THAT BAD?

Darrel L. Good, Scott H. Irwin and Joao Martines-Filho

Executive Summary

- It is commonly asserted that, on average, corn and soybean producers sell 2/3 of their crops in the bottom 1/3 of the price range.
- Average price received for corn and soybeans is “close” to the average price offered by the market in central Illinois.
- A new measure of the distribution of pricing opportunities is developed, with time-weighted price ranges based on pre- and post-harvest prices adjusted for carrying costs.
- Average price received for corn and soybeans tends to be in the middle third of the price range over 1990-1999 crop years.
- Evidence is inconsistent with argument that corn and soybean producers sell 2/3 of their crops in the bottom 1/3 of the price range.
- Performance of professional market advisory services provides useful perspective on the likely success of farmers in grain marketing.
- Little evidence that net advisory prices exceed market benchmark in corn.
- Substantial evidence net advisory prices exceed market benchmark in soybeans (+16 cents/bu.).
- Modest evidence that services exceed market benchmark for corn and soybean revenue (\$3/acre).
- Few services have prices in the top 1/3 of price range for corn or soybeans.
- Better pricing performance tends to come at the cost of more risk.
- Few services outperform the market when both return and risk are considered.
- Quite difficult to predict “winners” and “losers” based on past pricing performance.
- Overall, the evidence suggests farmers will not easily beat the market.
- A new approach to grain marketing starts with farmers assessing past marketing performance and their skills in marketing.

Grain Marketing: Are Farmers Really That Bad?

Darrel Good, Scott Irwin,
and Joao Martines



Grain Marketing: Are Farmers Really That Bad?

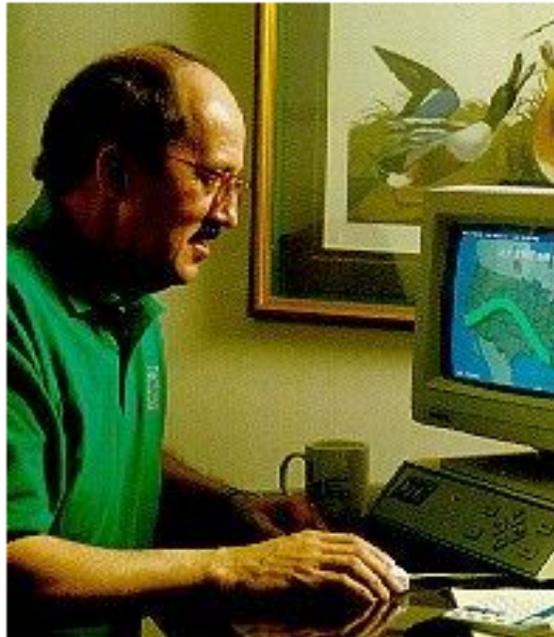
- Perception versus Reality
- Realistic Expectations for Success
- A New Approach

Grain Marketing: Perception versus Reality

- Perception: on average, corn and soybean producers sell 2/3 of their crops in the bottom 1/3 of price range
- Reality: ??

Farm Income Meeting Survey Results, December 12, 2000

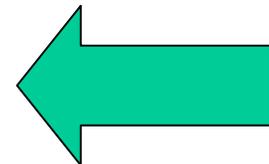
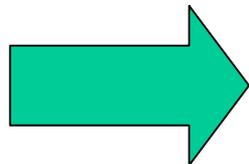
Question	True (%)	False (%)
On average, corn and soybean producers sell 2/3 of their crops in the bottom 1/3 of the price range	77	23



WHAT CAN DTN AgDaily DO FOR YOU?

Today, there are two ways for producers to increase their bottom-line profit: increase production efficiency or market more effectively. American farmers and ranchers are already producing at record levels... but

USDA statistics indicate farmers sell two-thirds of their crop in the bottom one-third of the crop's annual price range.



Grain Marketing: Reality

- Direct evidence: not available
- “Rough” evidence

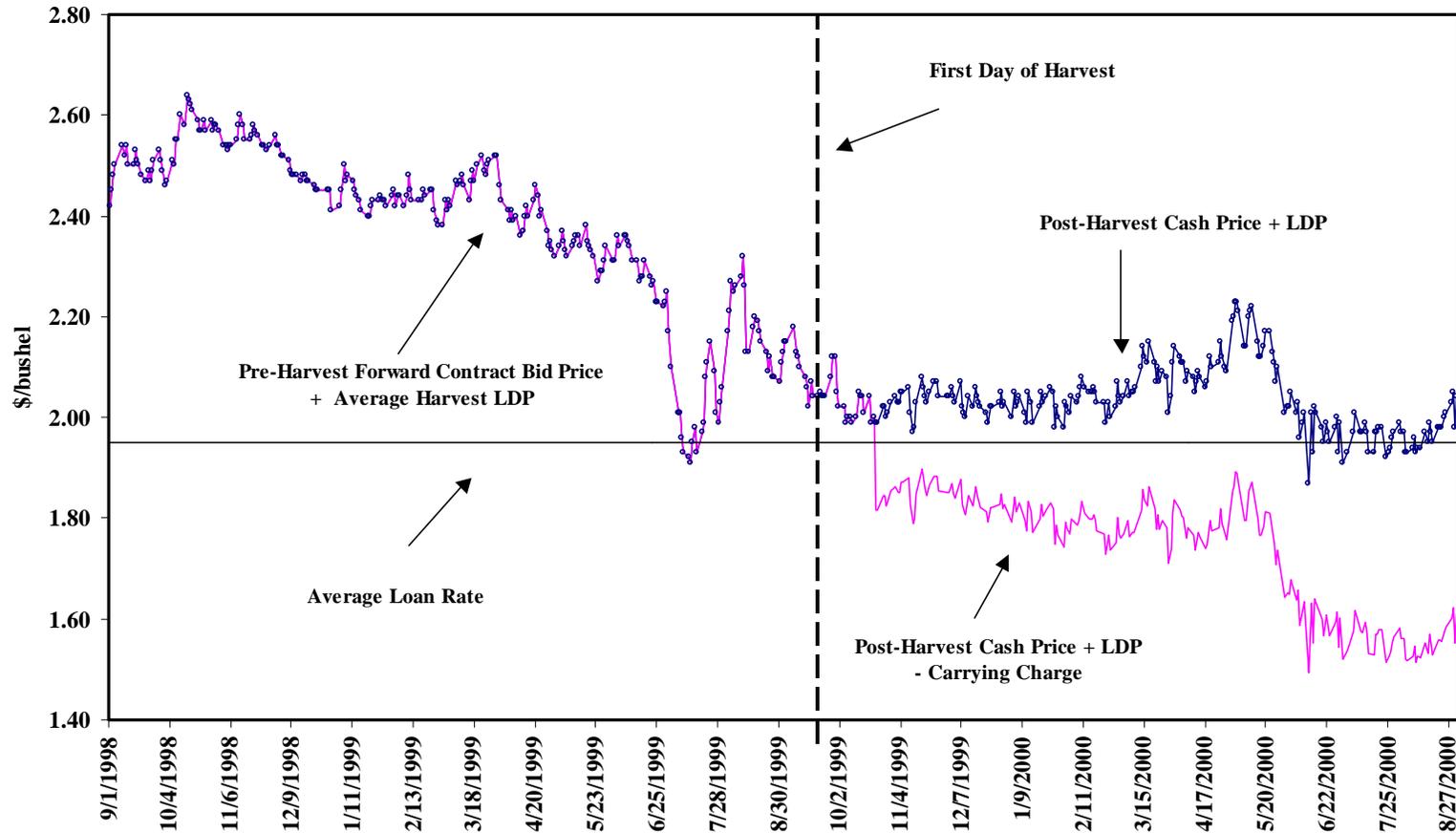
Reality: Available Data

- Price received by farmers: NASS/USDA surveys elevators for bushels purchased and average price paid in IL – monthly basis
- Overnight bids of country elevators for #2 yellow corn and #1 yellow soybeans for Central IL – daily basis (IL Dept of Ag Market News/ILDA)

Reality: Data Adjustments for Comparisons (harvest equivalent)

- Average Price Received: weighted by the percent of crop marketed for each month (marketing year)
- Average Price Offered: weighted average of daily Central IL bids over two-year marketing window (one year before and one year after harvest)
- All post-harvest sales are adjusted for carrying costs (interest rate + commercial storage)
- Average Price Offered are adjusted for yield

Corn Price Offered, 1999 Crop Year



Comparison of Averages: Price Received to Price Offered for Corn Farmers in IL

Year	Average Price Received Illinois	Average Price Offered Central Illinois
---\$/bushel---		
1990-91	2.09	2.16
1991-92	2.19	2.23
1992-93	1.87	2.07
1993-94	2.34	2.25
1994-95	2.02	2.17
1995-96	3.06	2.90
1996-97	2.50	2.65
1997-98	2.23	2.33
1998-99	1.79	2.08
1999-00	1.66	1.84
Average	2.18	2.27
Std. Dev.	0.40	0.30

Source: NASS/USDA and IL Dep of Ag Market News

Comparison of Averages: Price Received to Price Offered for Soybean Farmers in IL

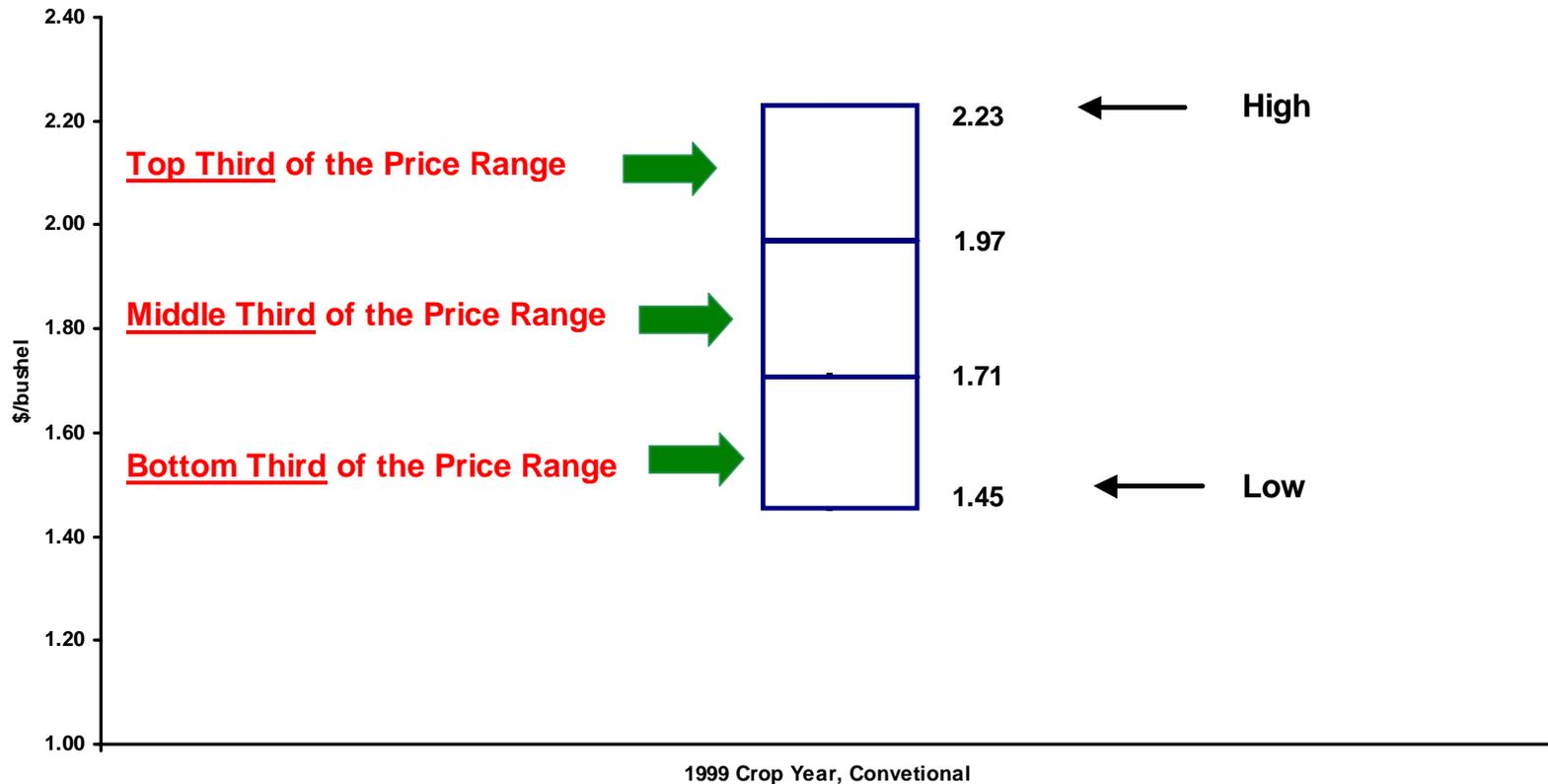
Year	Average Price Received Illinois	Average Price Offered Central Illinois
	---\$/bushel---	
1990-91	5.49	5.56
1991-92	5.40	5.56
1992-93	5.43	5.61
1993-94	6.22	5.99
1994-95	5.29	5.59
1995-96	6.59	6.26
1996-97	7.17	7.08
1997-98	6.17	6.30
1998-99	4.72	5.27
1999-00	4.48	4.70
Average	5.70	5.79
Std. Dev.	0.83	0.65

Source: NASS/USDA and IL Dep of Ag Market News

Comparison of Price Distribution: Conventional Approach

- Post-harvest cash prices
- Range of prices = high - low
- Divide range into top third, middle third, and bottom third
- No adjustment for carrying costs

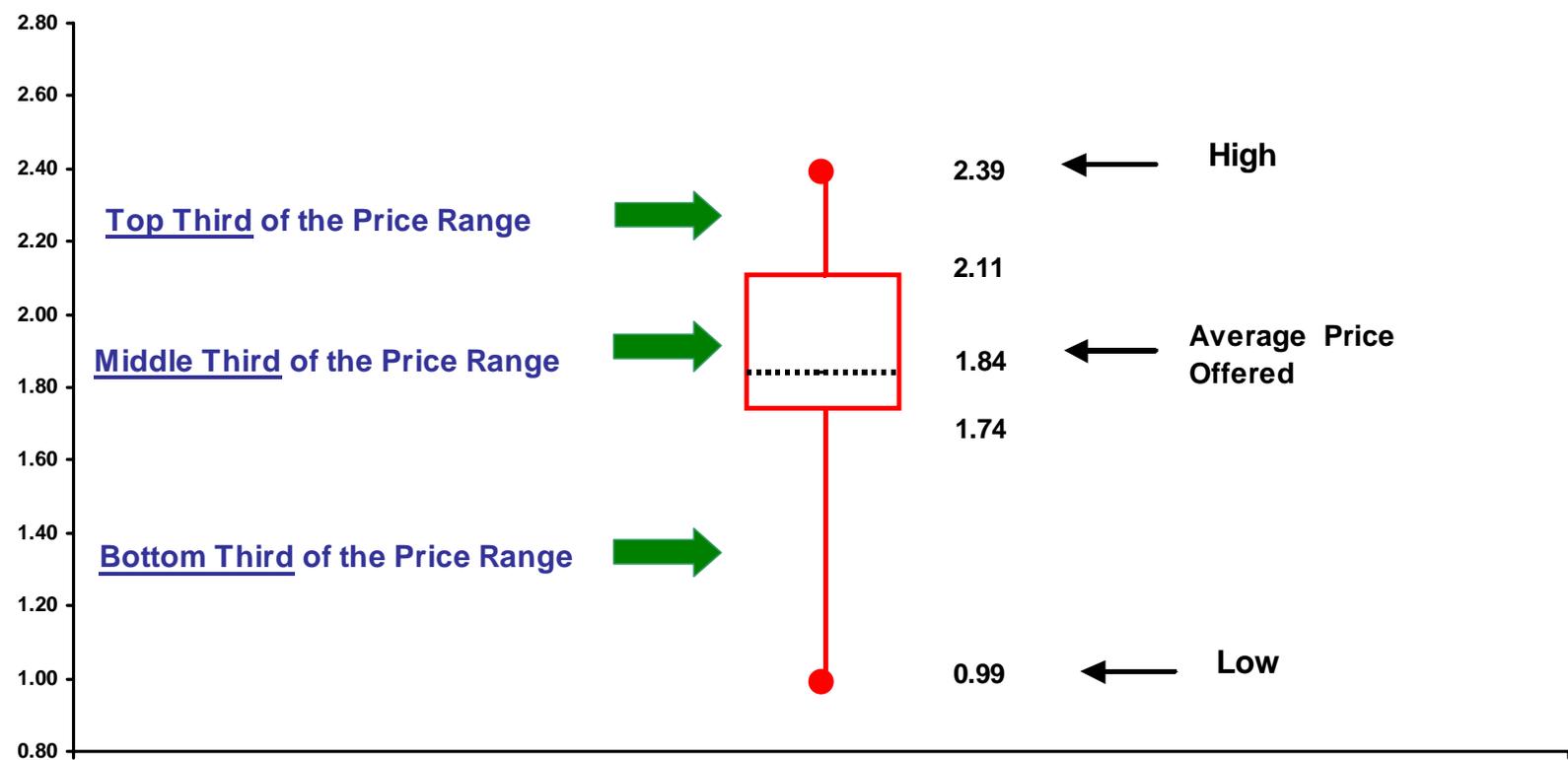
Conventional Approach: Corn Price in Central IL, 1999 Crop Year



Comparison of Price Distribution: Box Plot Approach

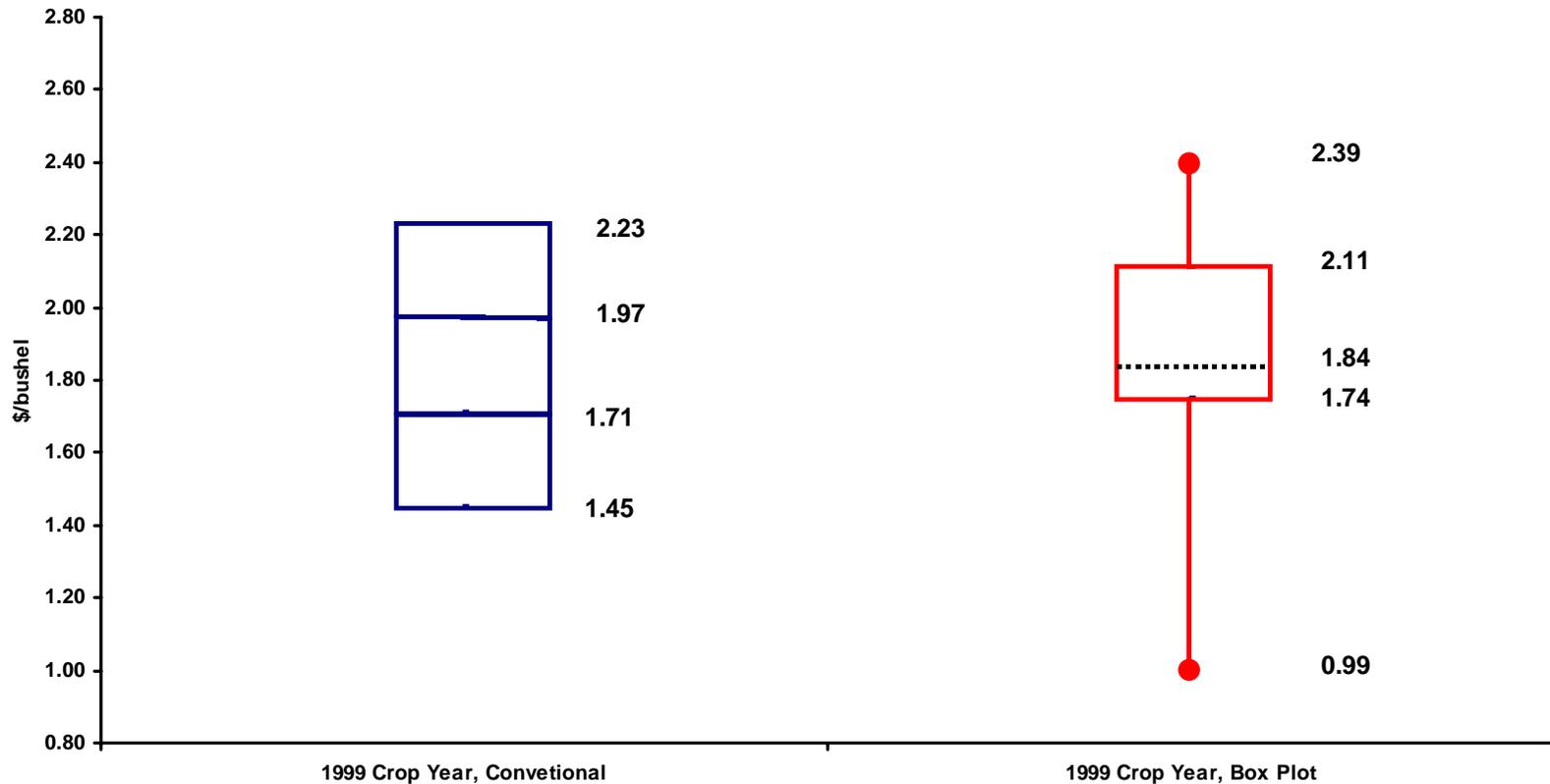
- Pre- and Post-harvest cash prices (two-year marketing window)
- Adjustments for carrying costs (interest rate + commercial storage)
- Time weighted distribution

Box Plot Approach: Corn Price in Central IL, 1999 Crop Year

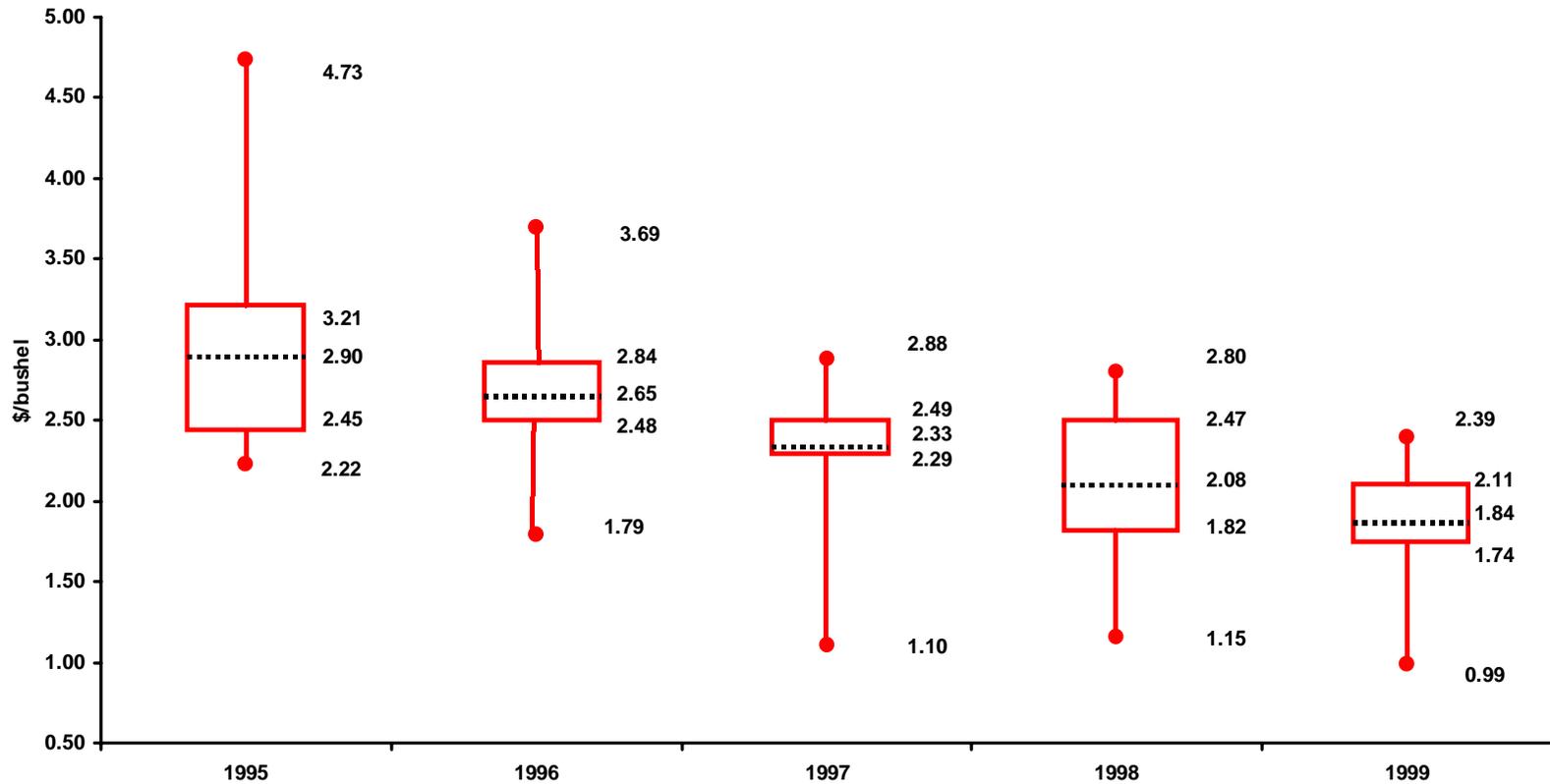


1999 Crop Year, Box Plot

Conventional versus Box Plot Approach: Corn Price in Central IL, 1999 Crop Year



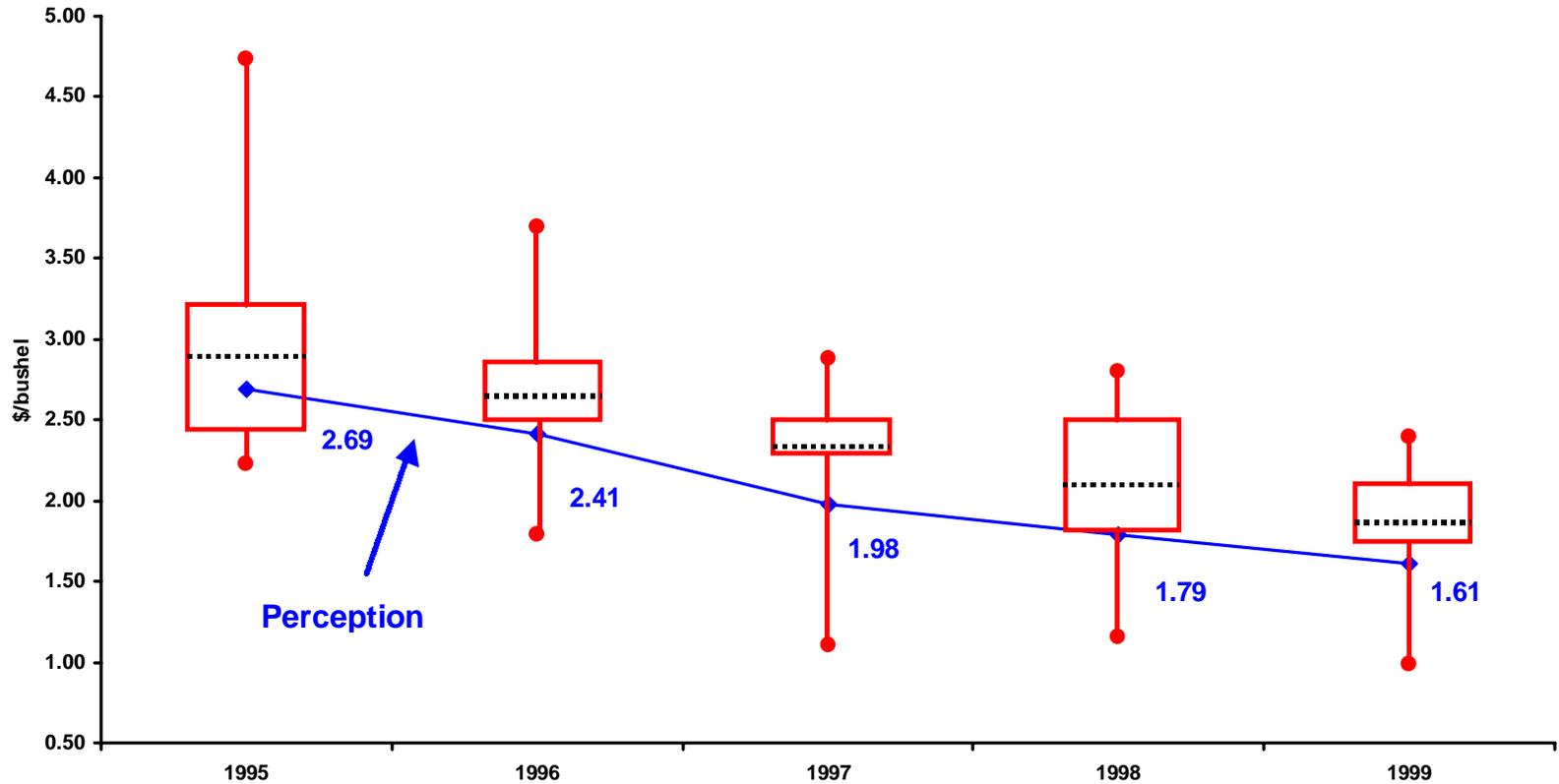
Corn Prices: Box Plot



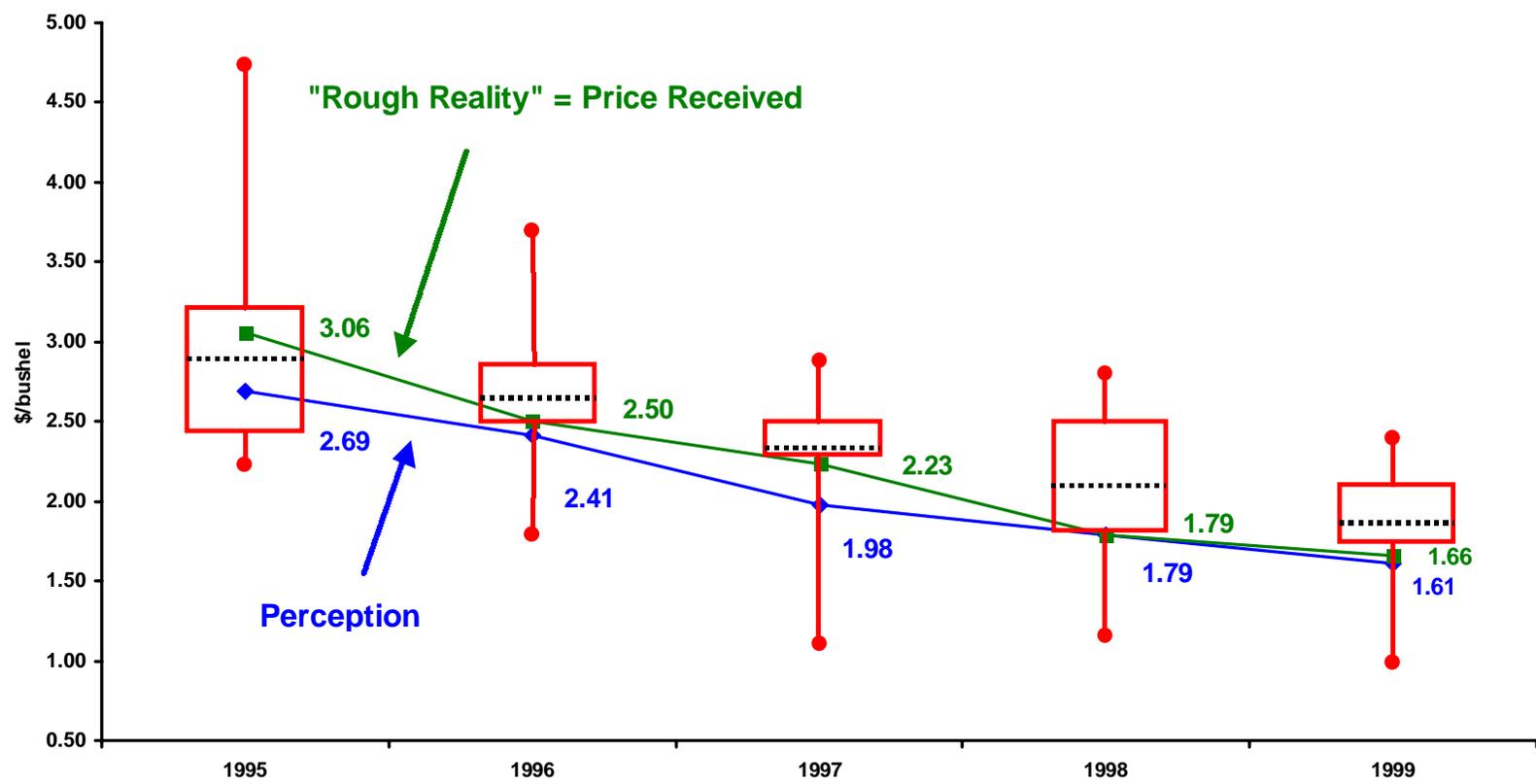
Corn Prices: Perception

- 2/3 of the crop is marketed in the bottom third of price range
- 1/3 of the crop is marketed in the middle and top third of price range

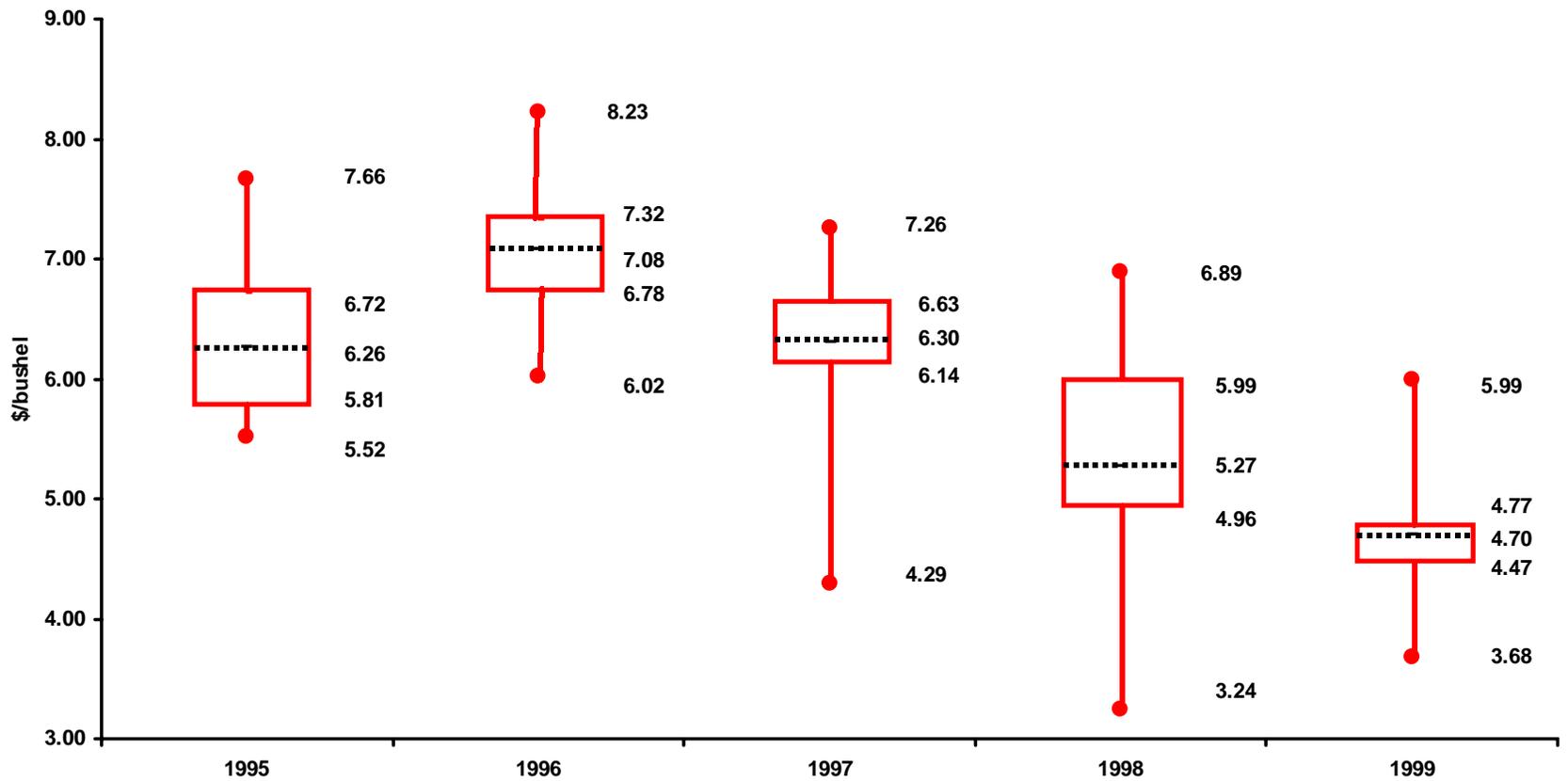
Corn Prices: Perception



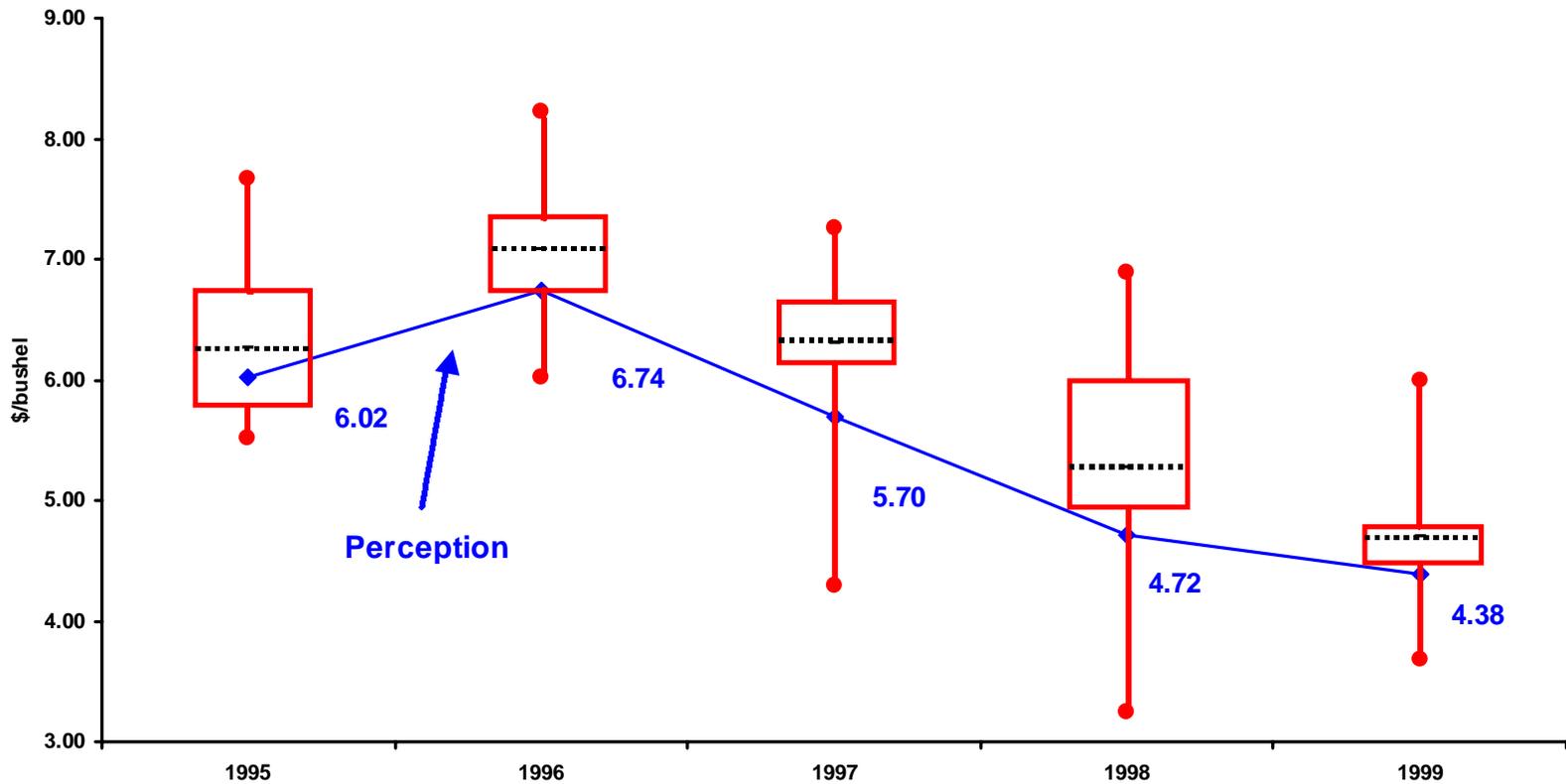
Corn Prices: Perception x "Reality"



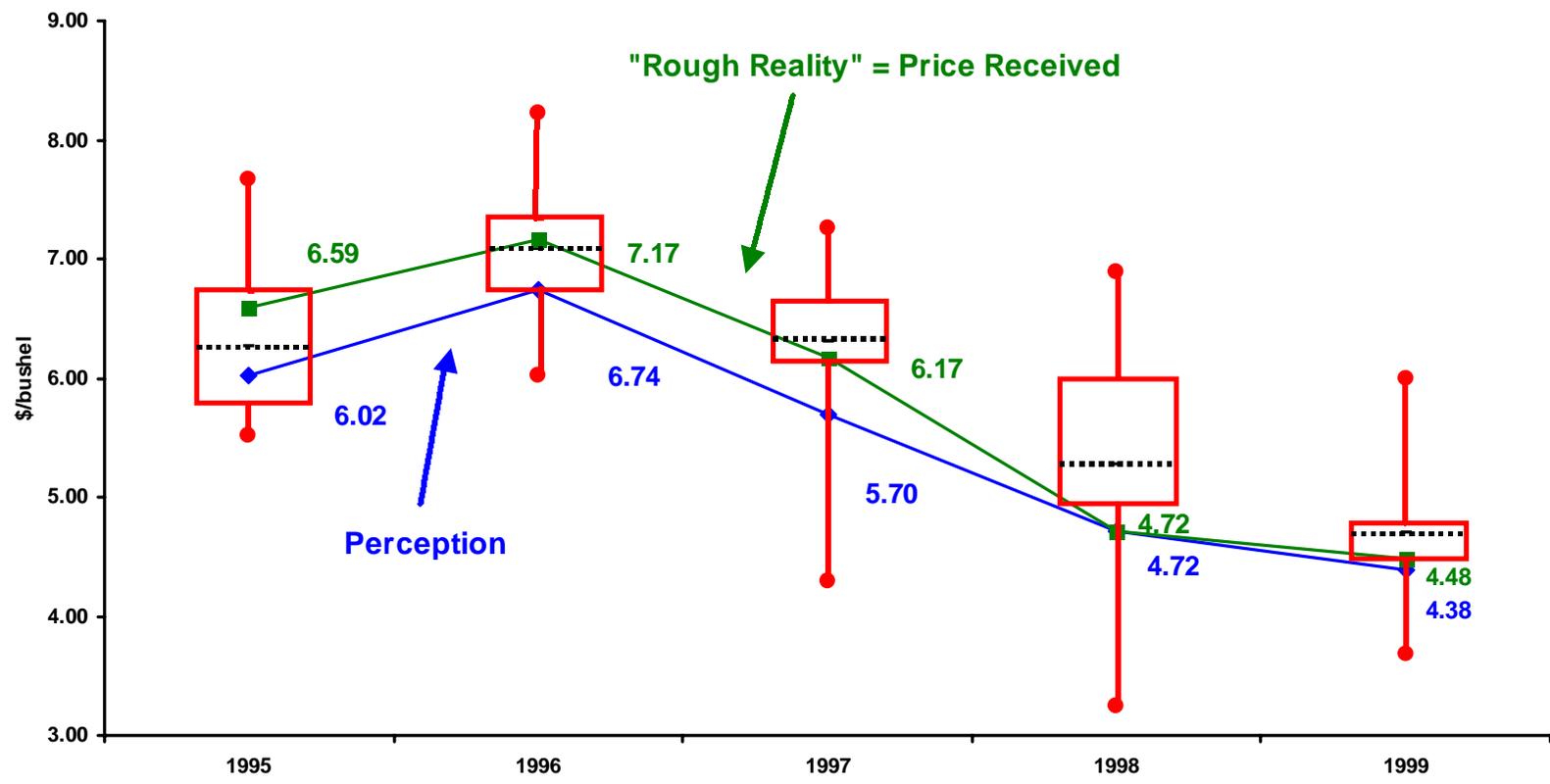
Soybean Prices: Box Plot



Soybean Prices: Perception



Soybean Prices: Perception x "Reality"



Summary of Grain Marketing: Perception versus Reality

- Average price received for corn and soybeans in IL is “close” to the average price offered by the market in central Illinois
- A new measure of the distribution of pricing opportunities is developed, with time-weighted price ranges based on pre- and post-harvest prices adjusted for carrying costs: box plot approach
- Evidence is inconsistent with argument that corn and soybean producers sell 2/3 of their crops in the bottom 1/3 of the price range

Key Points

- Does NOT prove that average price received by farmers equals the average price offered by the market
- Farmers may under-perform the market, just not as much as popular perception
- Likely a wide range of grain marketing performance across farmers



<http://web.aces.uiuc.edu/farm.doc/>

Grain Marketing: Realistic Expectations for Success

- Key Question: What are the odds of a farmer consistently “beating the market?”
- Would like to have direct evidence on the pricing performance of farmers, but not available
- Examine five-year performance record of market advisory services in corn and soybeans for relevant evidence

Farm Income Meeting Survey Results, December 12, 2000

Question	True (%)	False (%)
On average, corn and soybean producers sell 2/3 of their crops in the bottom 1/3 of the price range	77	23
In general, professional market advisory services' recommendations result in average prices in the top 1/3 of the price range	28	72

National Survey of Market Advisory Service Subscribers, Jan/Feb 2000

Is a market advisory service a tool to receive a higher than average price?

	Not at all					Certainly					
	1	2	3	4	5	6	7	8	9	Avg.	
%	2.1	1.8	3.1	2.3	9.8	19.8	22.3	15.3	23.4	6.8	

Agricultural Market Advisory Service Project (AgMAS)

- Little research on performance of market advisory services
- In 1994, the AgMAS Project was started
 - Goal of providing unbiased and rigorous performance evaluation
 - Evaluate performance in marketing corn, soybeans and wheat

Contacting the AgMAS Project

- Project Manager: Joao Martines-Filho
- Office Address: 434a Mumford Hall,
1301 West Gregory Drive, University of
Illinois, Urbana, IL 61801
- Phone: (217)333-2792
- Email: agmas@uiuc.edu
- Website:
web.aces.uiuc.edu/farm.doc/agmas

AgMAS Review Panel

- External panel reviews all research output of the AgMAS Project
- Members:
 - Frank Beurskens, E-markets
 - Jeffrey Brunoehler, Illinois banker
 - Renny Ehler, Illinois Farmer
 - Chris Hurt, Purdue University
 - Terry Kastens, Kansas State University
 - Robert Wisner, Iowa State University

Two Important Questions

- Do market advisory services, on average, outperform an appropriate market benchmark?
- Is market advisory service performance predictable from year-to-year?

AgMAS Data Collection

- Tracking about 25 advisory services since September 1994
- Paid subscriptions obtained for each service
- Recommendations recorded in "real-time"
- Data available for corn and soybeans for 1995, 1996, 1997, 1998 and 1999 crops

Examples of Advisory Service Recommendations

- Stewart-Peterson Advisory Service:
 - May 12, 1995: forward contract 10% of 1995 expected corn production
- Zwicker Advisory Service
 - February 1, 1996: buy November 96 soybean futures at \$7.08 to use as a replacement for 50% of 1995 crop cash sales to date

Simulation of Advisory Service Performance

- Simulation for central Illinois farm
- Two-year marketing window
- Transactions applied to expected or actual yield per acre
- Cash sales are discounted for interest and storage charges
- Net advisory prices are stated in harvest equivalent terms
- LDPs/MLGs included for 1998 and 1999 crops

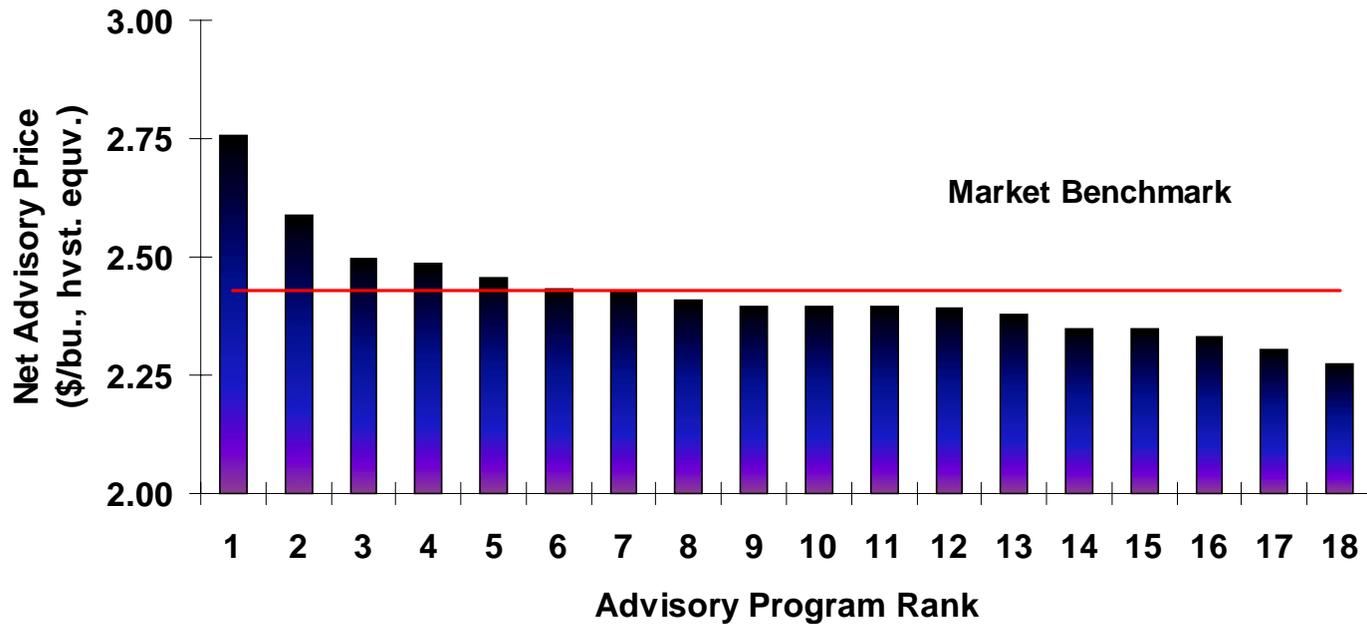
Calculation of Net Advisory Prices: 1998 Corn

Market Advisory Program	Unadjusted	Carrying Charges			Net Cash Sales Price	Futures &		LDP / MLG	Net Advisory Price
	Cash Sales Price	Interest Costs	Storage Costs	Shrink Costs		Options Gain	Brokerage Costs		
	---\$/bushel---								
Ag Line (cash-only)	2.20	0.03	0.10	0.03	2.05	0.00	0.00	0.17	2.22
Ag Line (hedge)	2.20	0.03	0.10	0.03	2.05	0.11	0.01	0.17	2.32
Ag Profit	2.13	0.06	0.18	0.04	1.86	-0.07	0.01	0.26	2.05

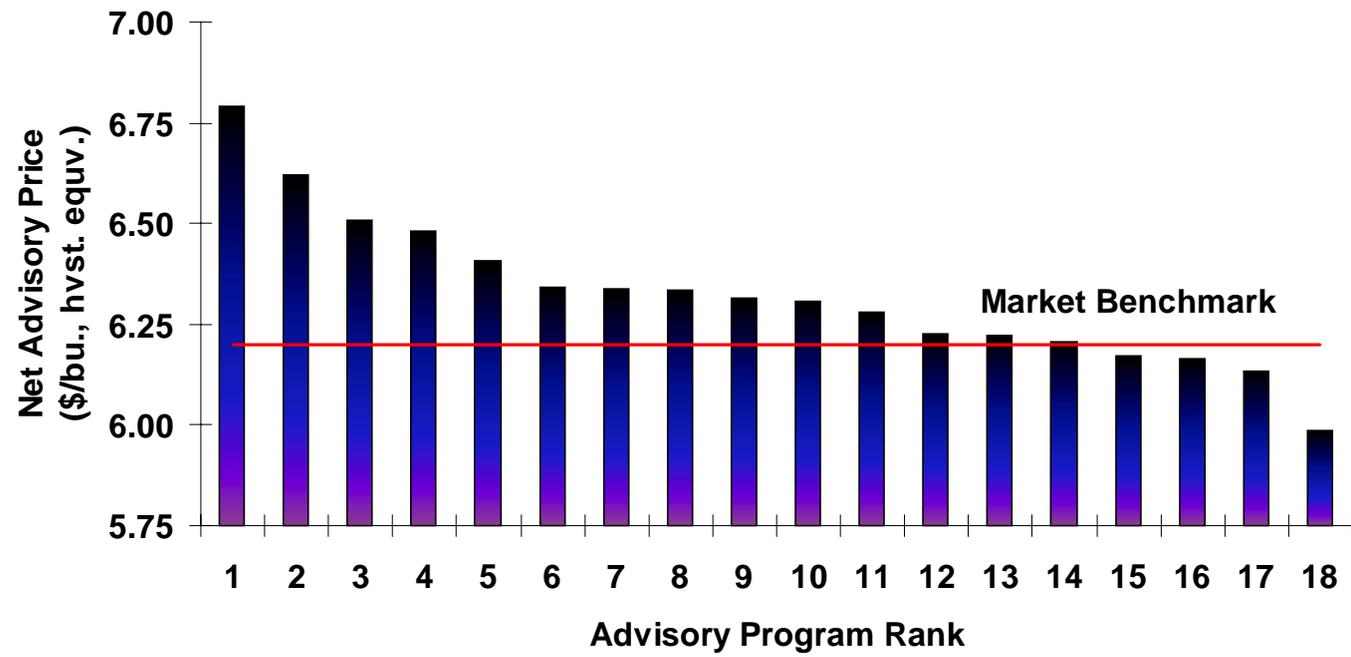
Market Benchmark Price

- Benchmark needed to evaluate performance relative to the pricing opportunities provided by the market
- Use the average cash price over the two-year marketing window for a crop
 - 1 year pre-harvest: daily forward cash prices
 - 1 year post-harvest: daily spot cash prices

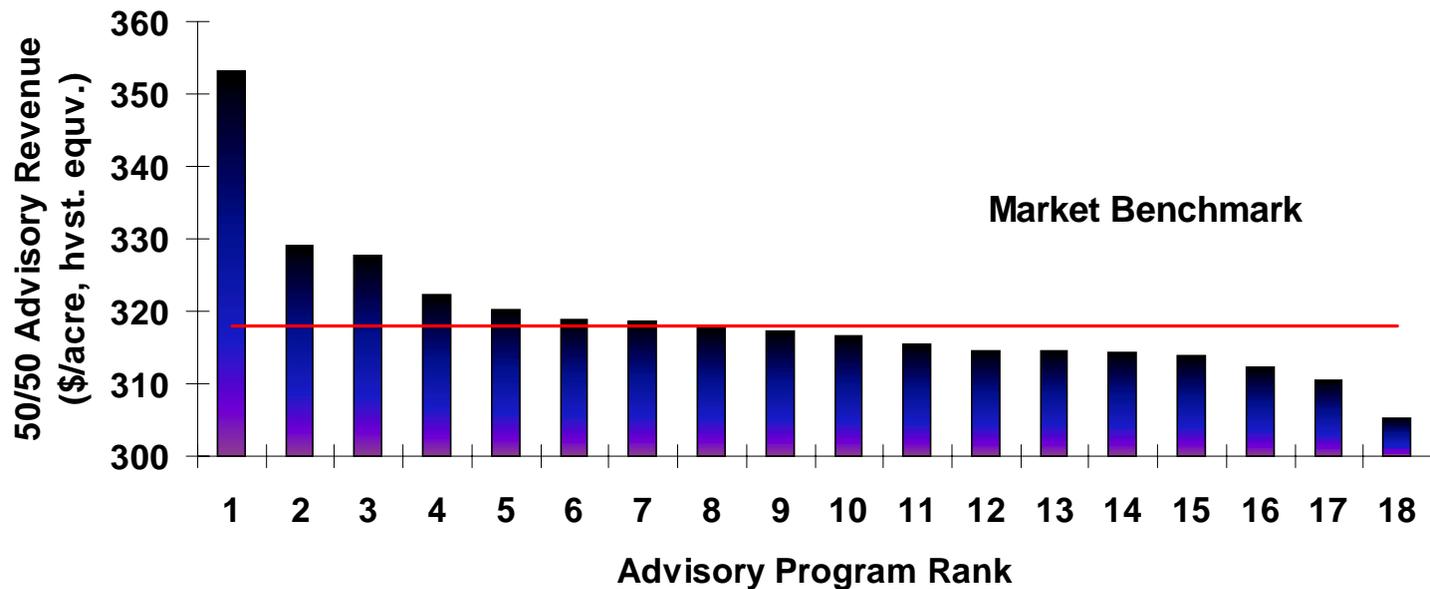
Average Net Advisory Prices, Corn, 1995-1999



Average Net Advisory Prices, Soybeans, 1995-1999



Average 50/50 Advisory Corn and Soybean Revenue, 1995-1999



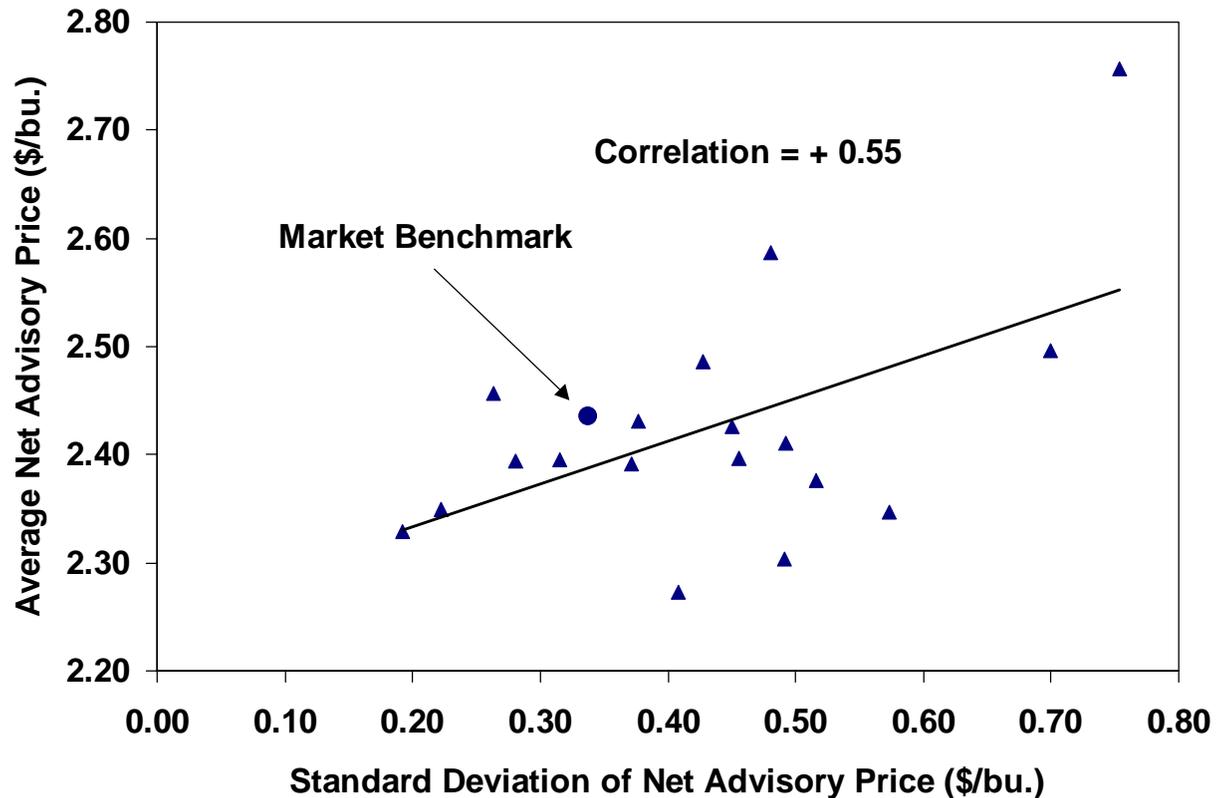
Number of Advisory Programs Above Market Benchmark

	Corn (%)	Soybeans (%)	Revenue (%)
1995	72	84	76
1996	38	79	67
1997	43	62	48
1998	30	32	27
1999	54	60	48
1995-99	48	64	54

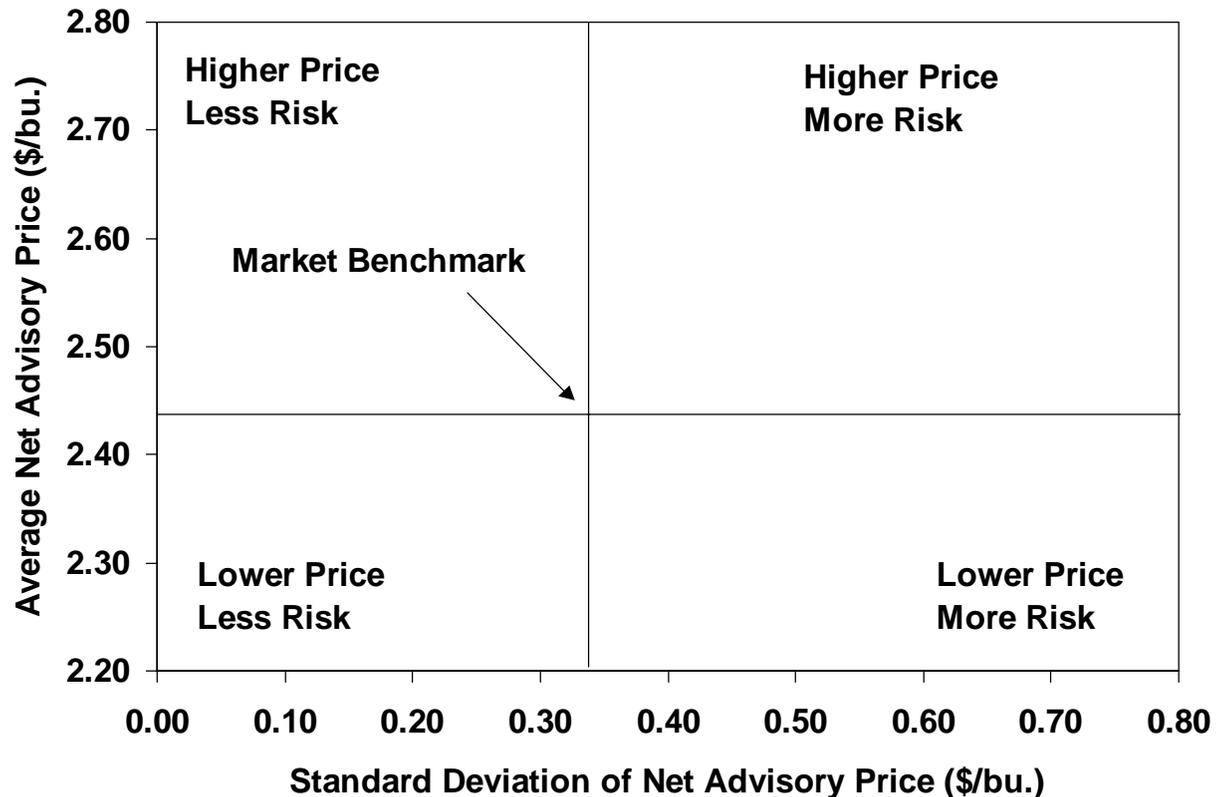
Average Program Returns Above Market Benchmark

	Corn (¢/bu.)	Soybeans (¢/bu.)	Revenue (\$/acre)
1995	+14	+33	15
1996	-2	+19	2
1997	-1	+10	1
1998	-7	-5	-6
1999	-3	+17	2
1995-99	0	+16	+3

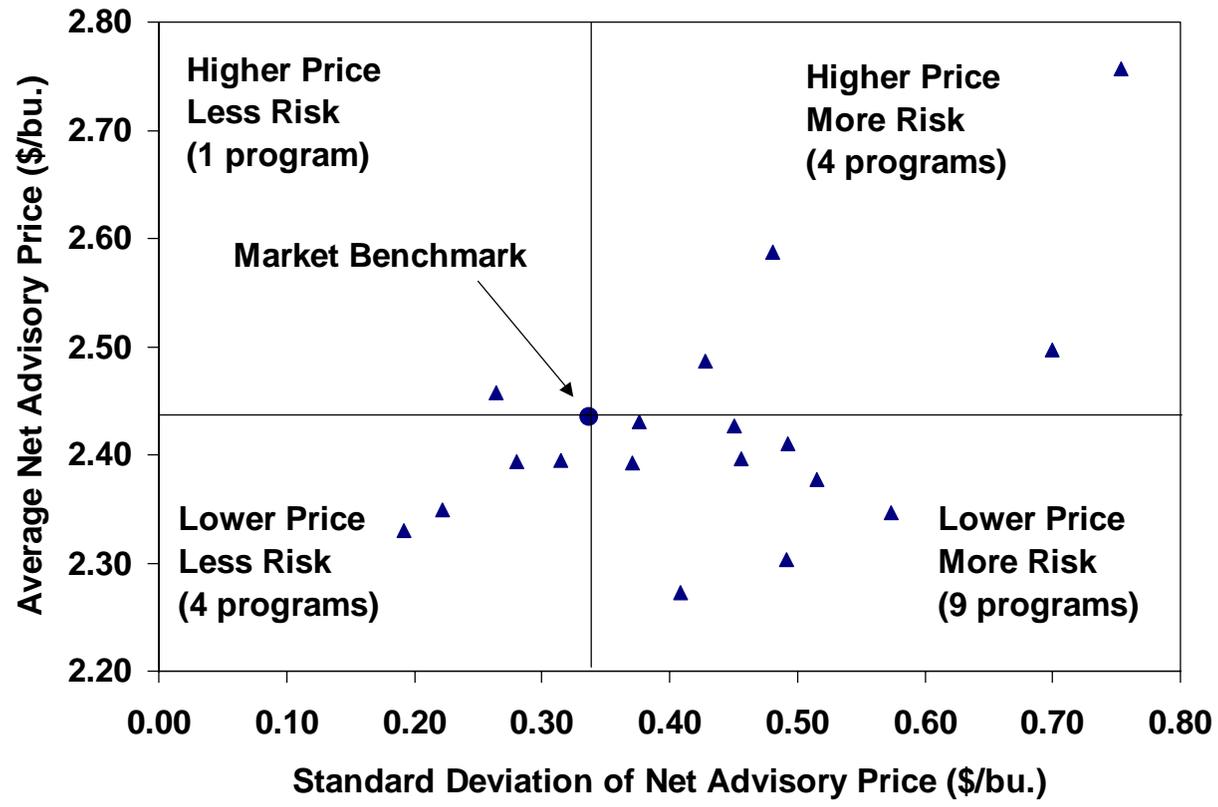
Average Net Advisory Price and Risk, Corn, 1995-1999



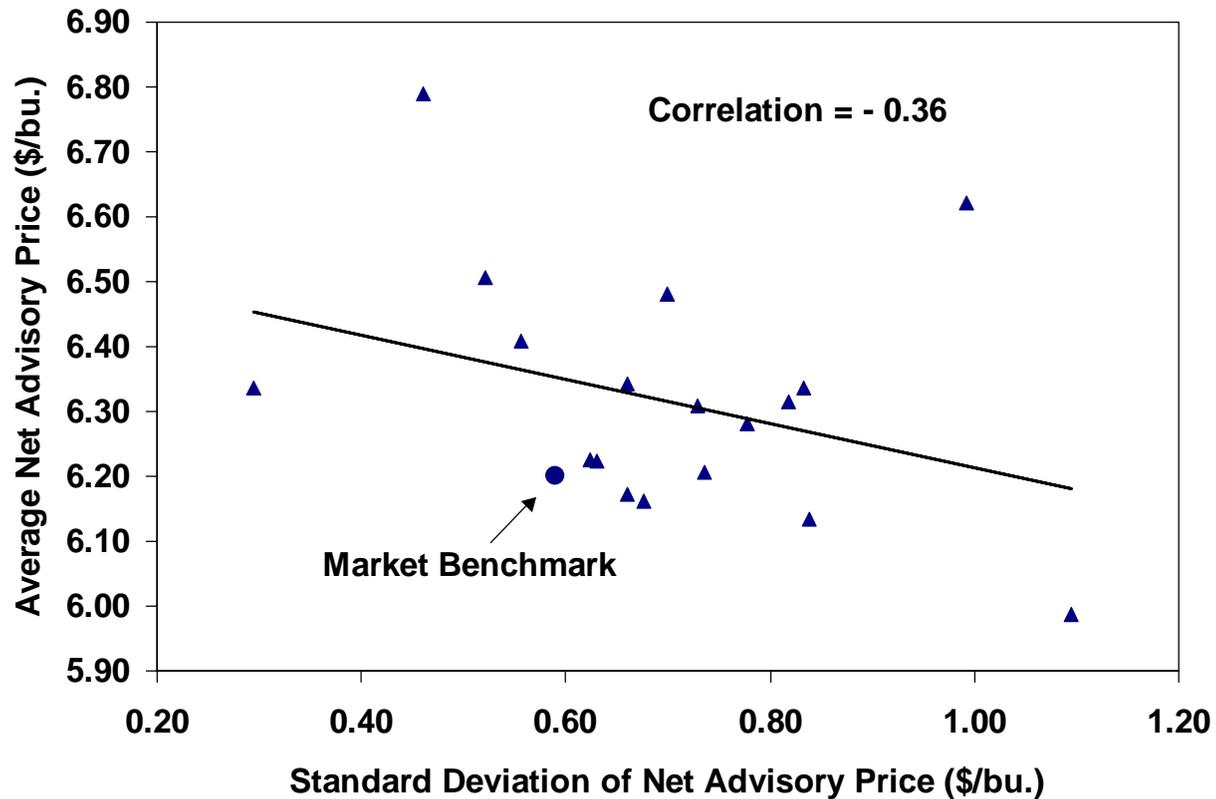
Pricing Performance and Risk Relative to Benchmark



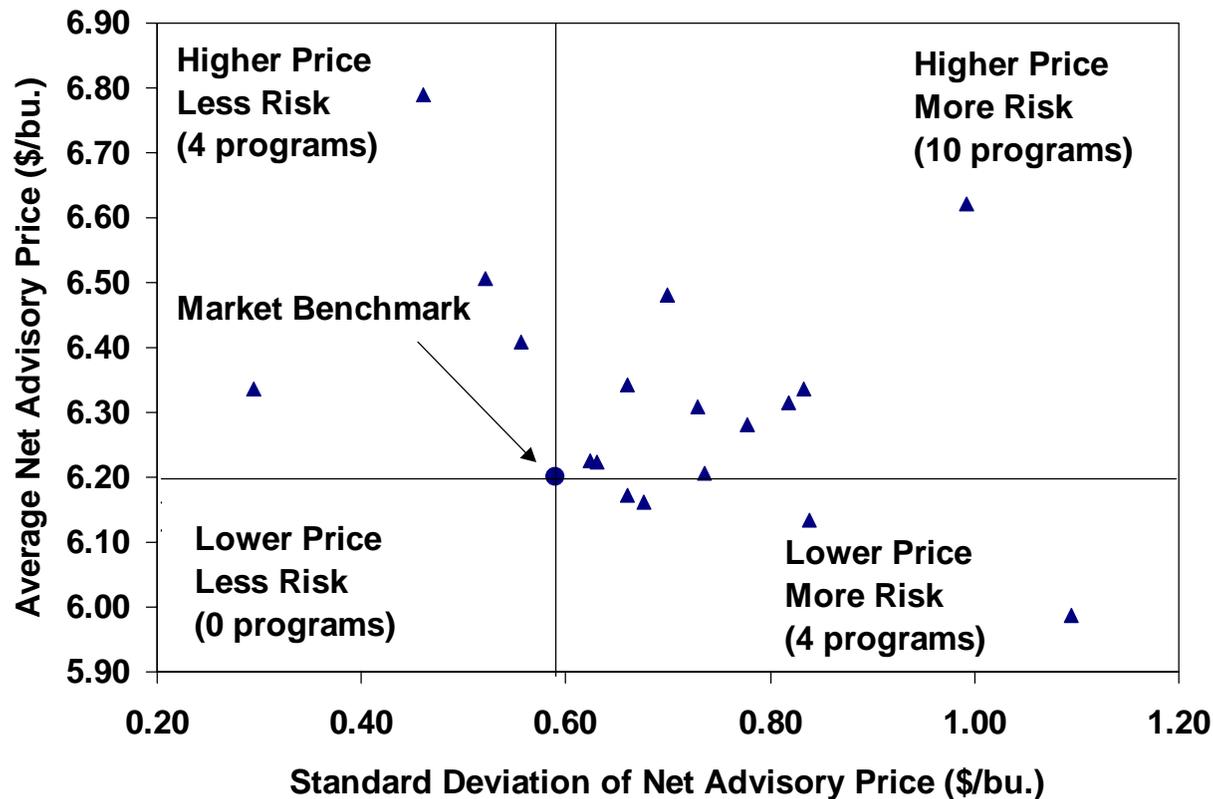
Pricing Performance and Risk Relative to Benchmark, Corn, 1995-1999



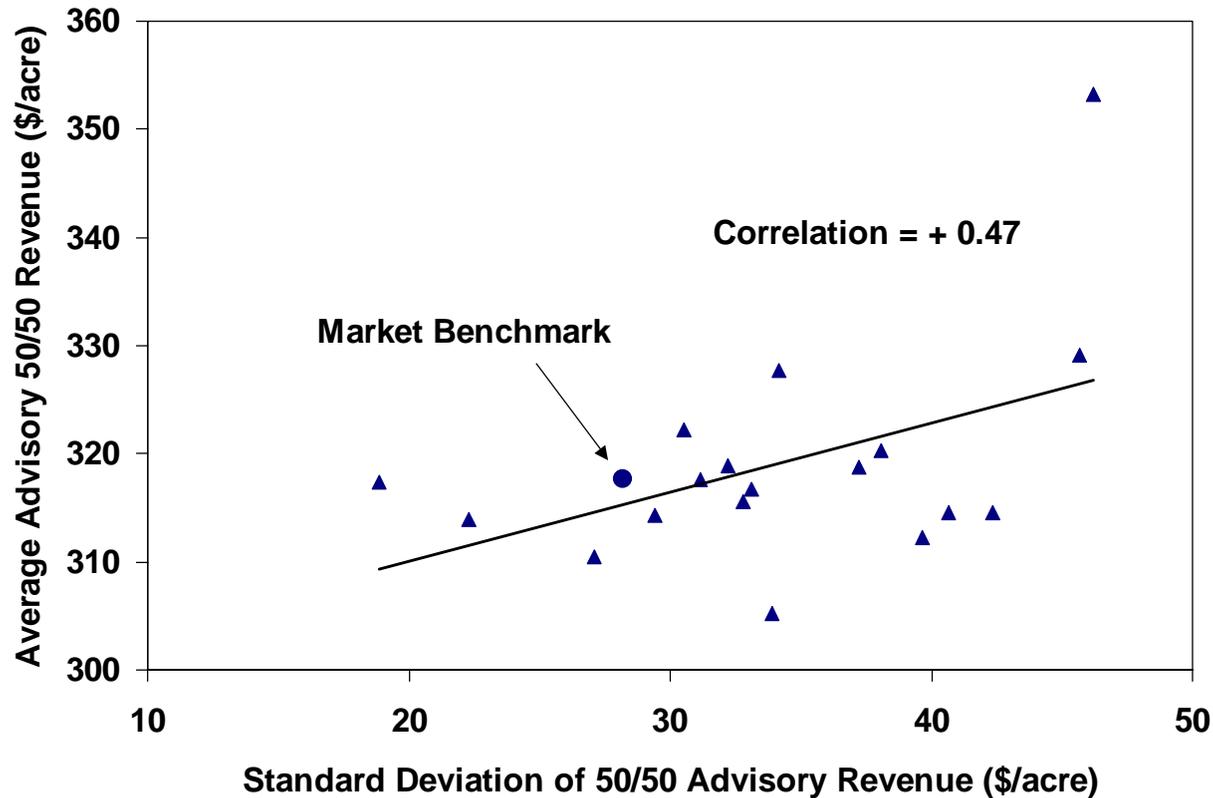
Average Net Advisory Price and Risk, Soybeans, 1995-1999



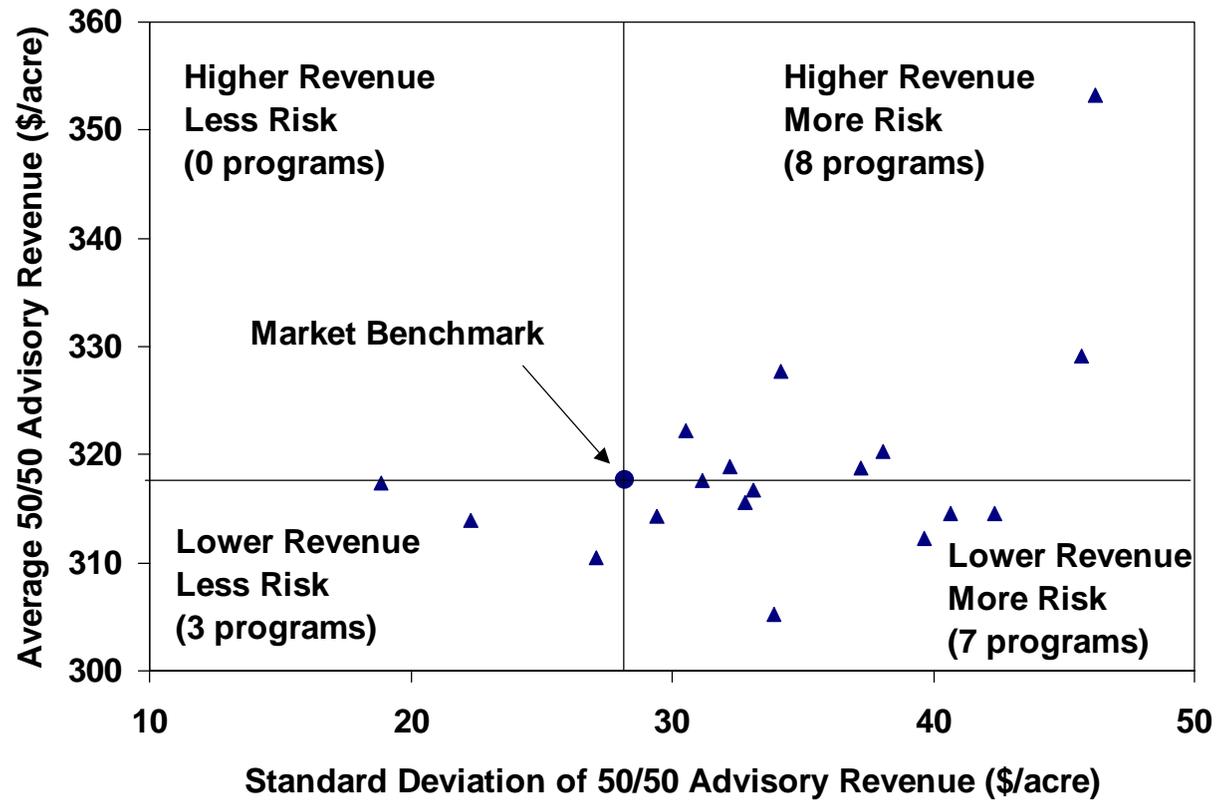
Pricing Performance and Risk Relative to Benchmark, Soybeans, 1995-1999



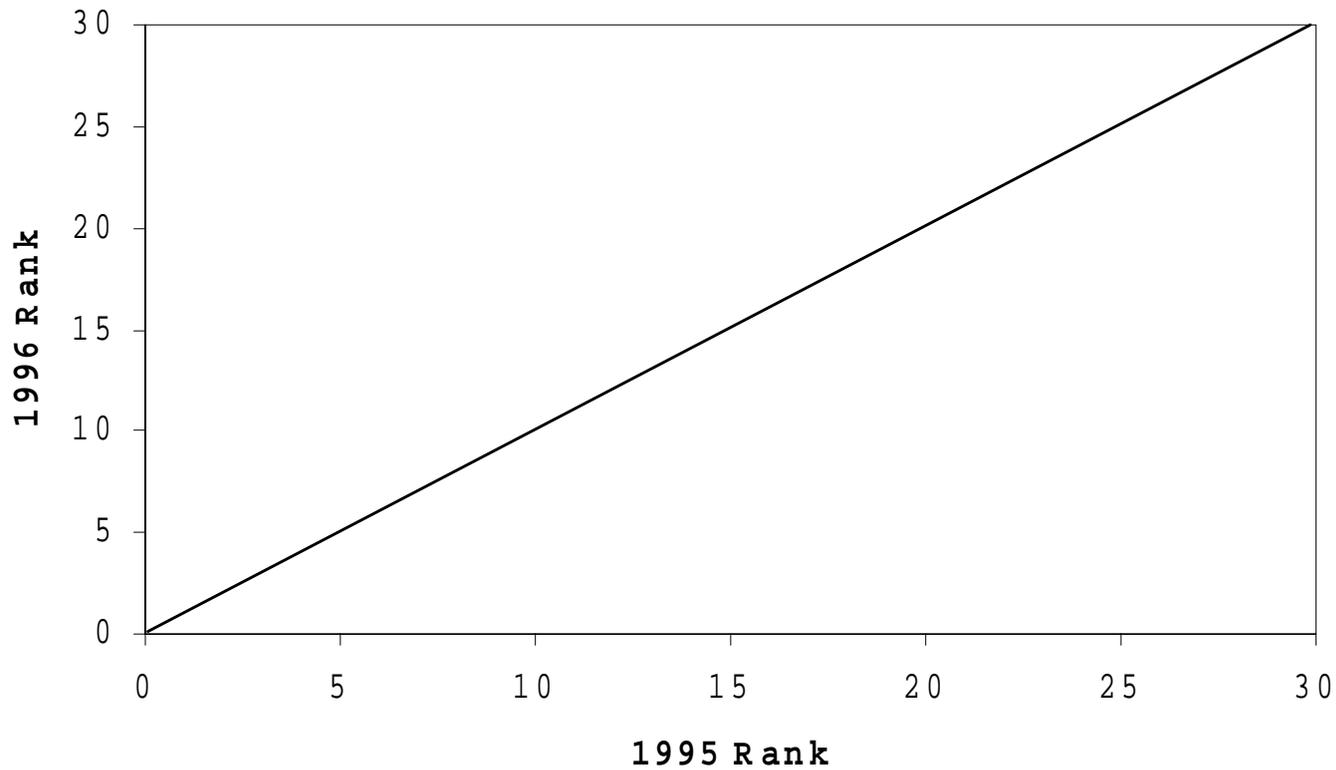
Average Net Advisory Price and Risk, 50/50 Revenue, 1995-1999



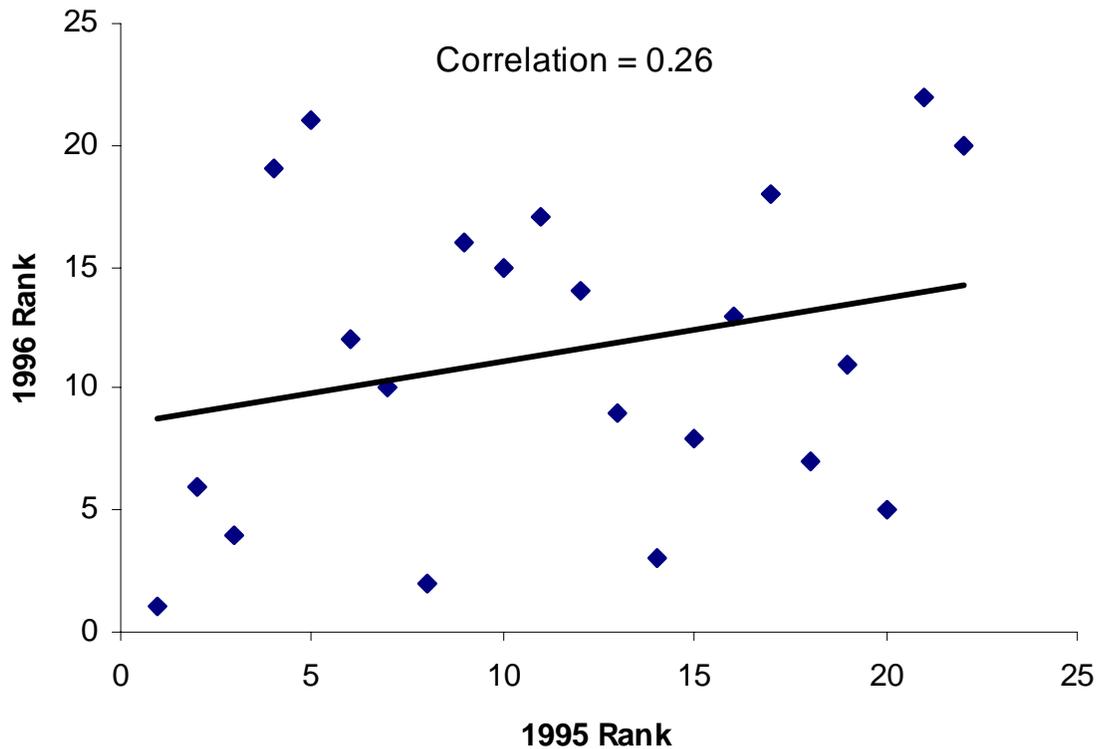
Pricing Performance and Risk Relative to Benchmark, 50/50 Revenue, 1995-1999



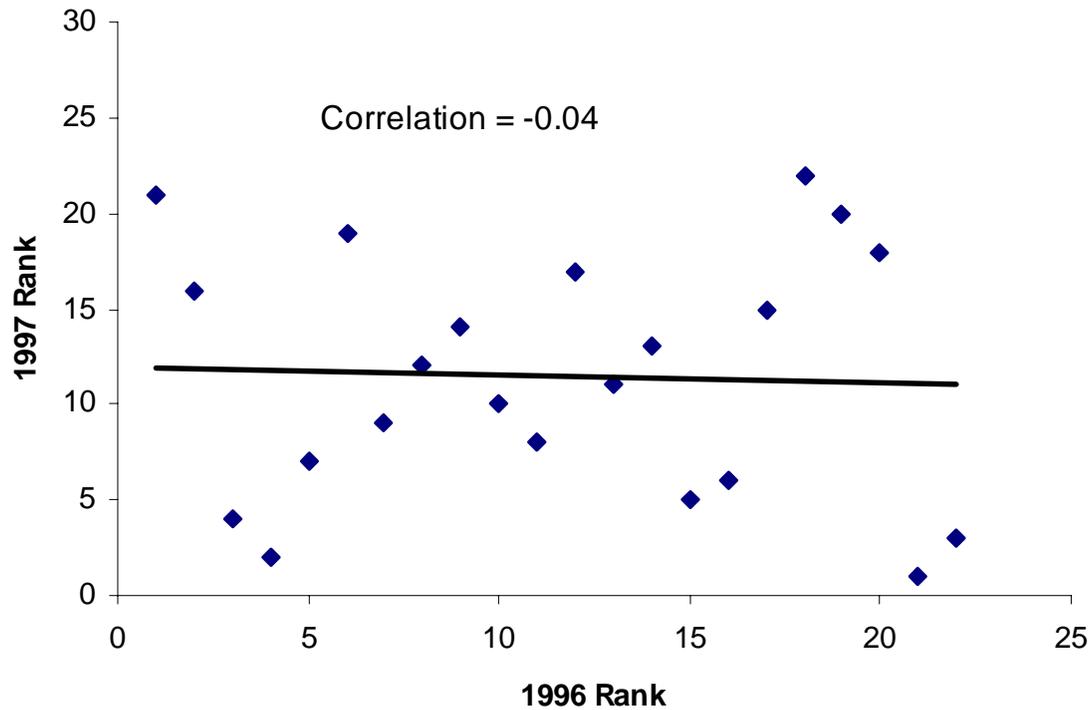
Perfect Predictability of Advisory Service Program Rank



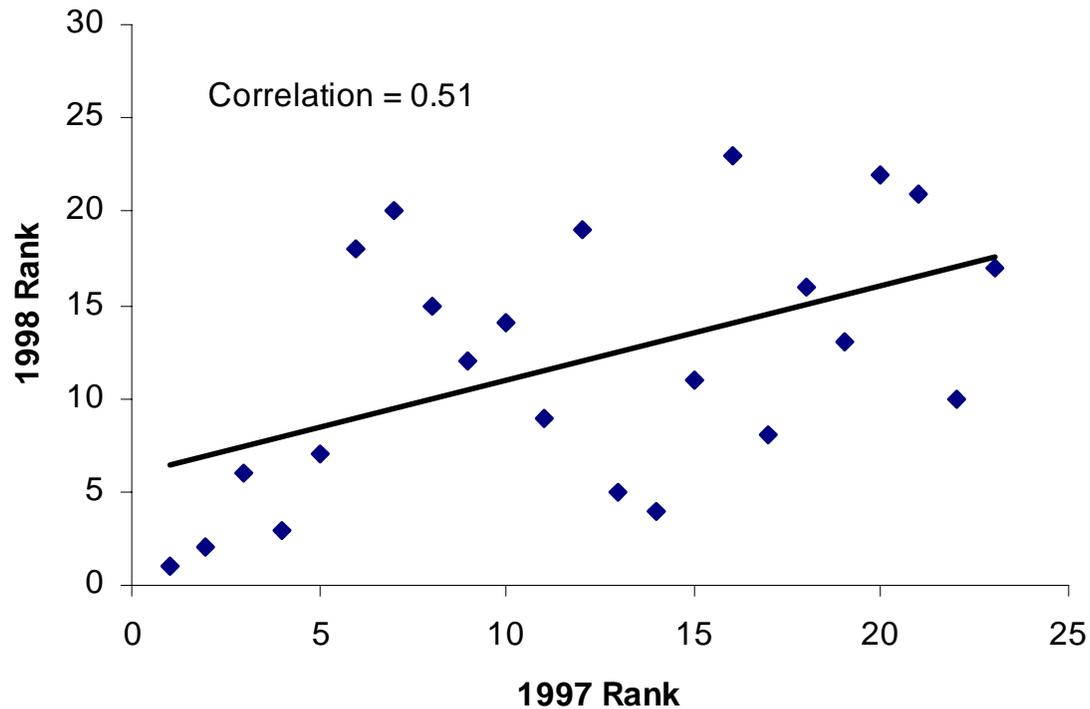
Advisory Service Program Rank, Corn, 1995 vs. 1996



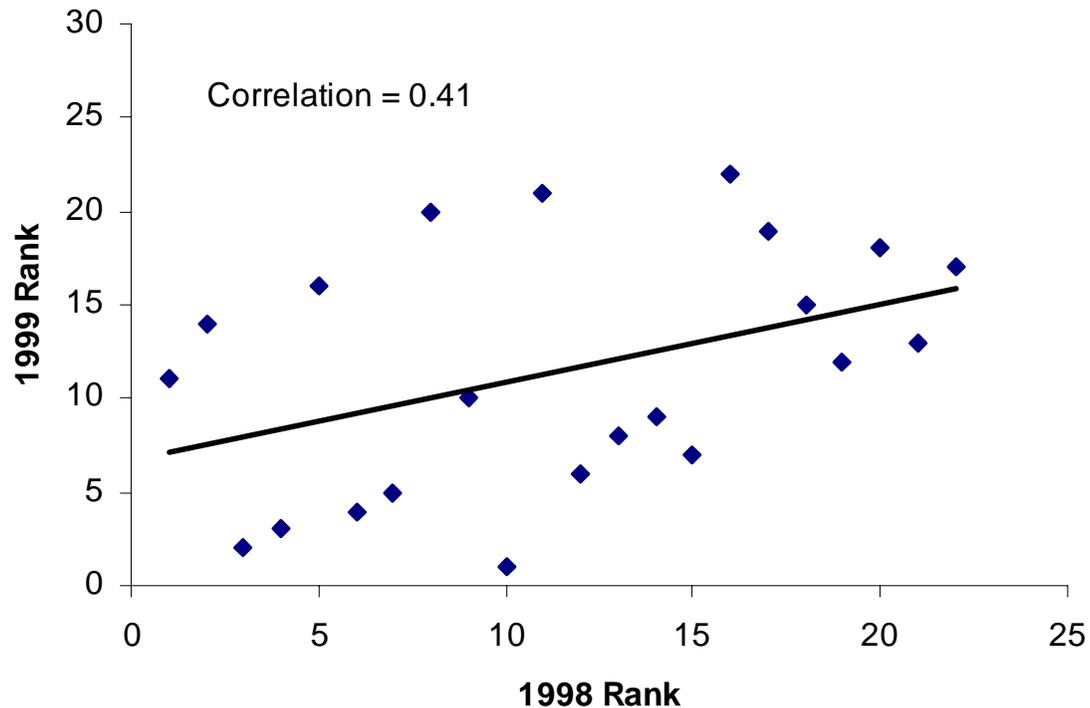
Advisory Service Program Rank, Corn, 1996 vs. 1997



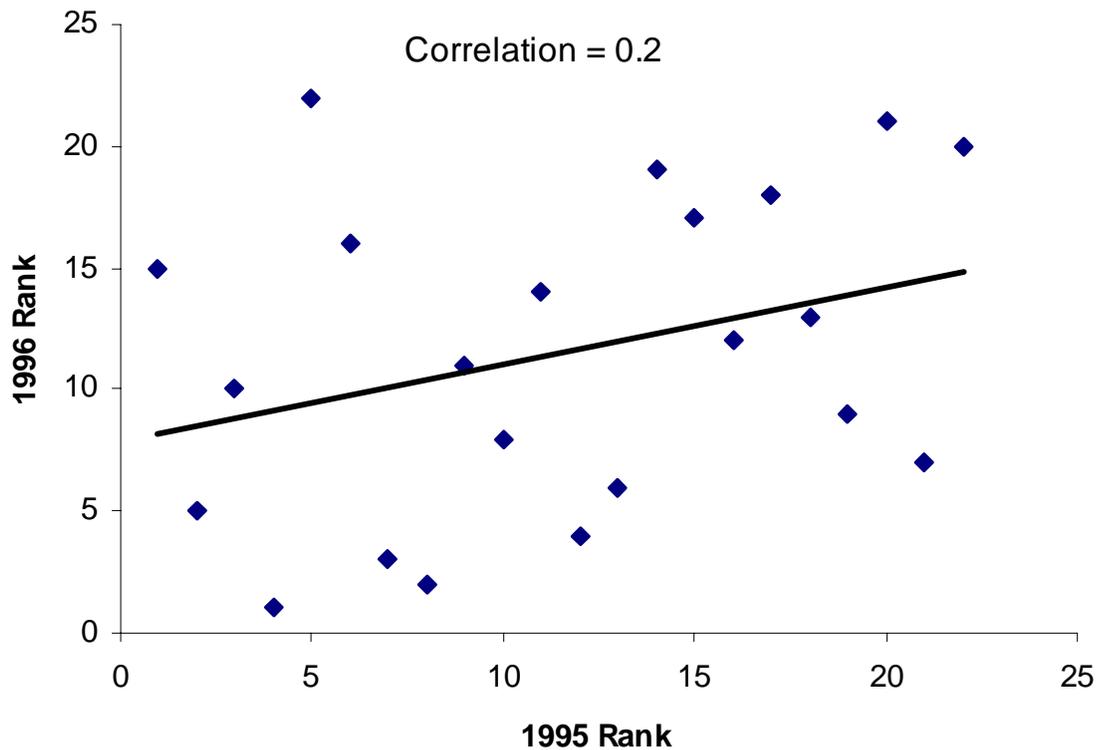
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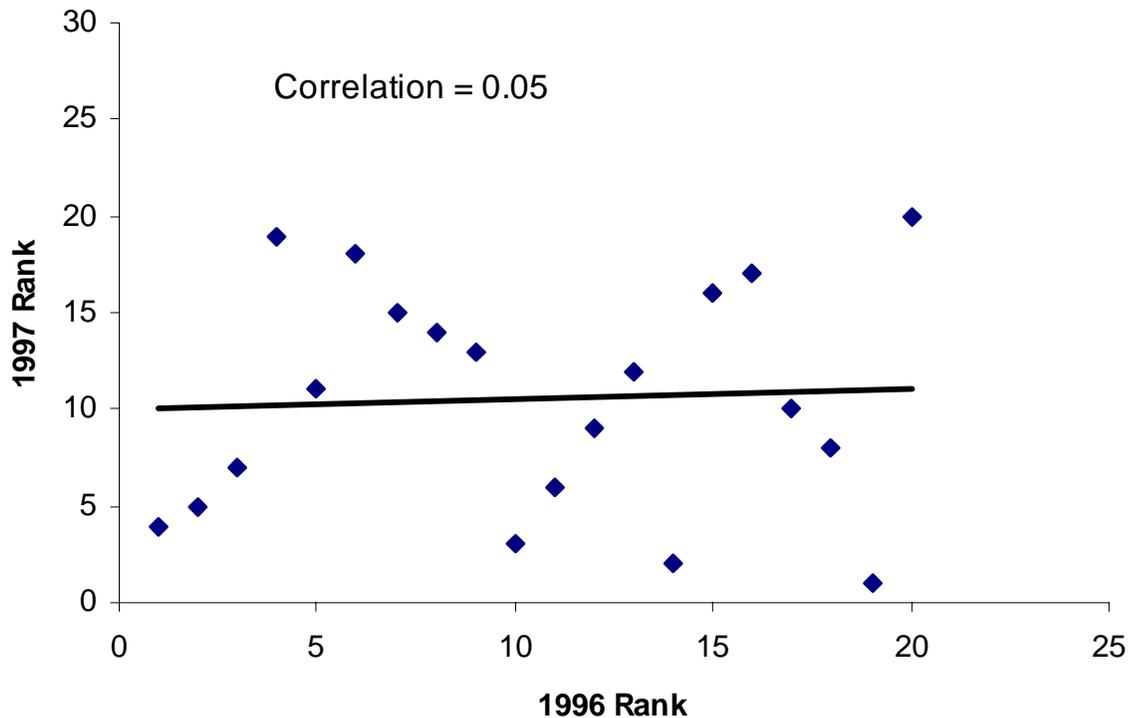
Advisory Service Program Rank, Corn, 1998 vs. 1999



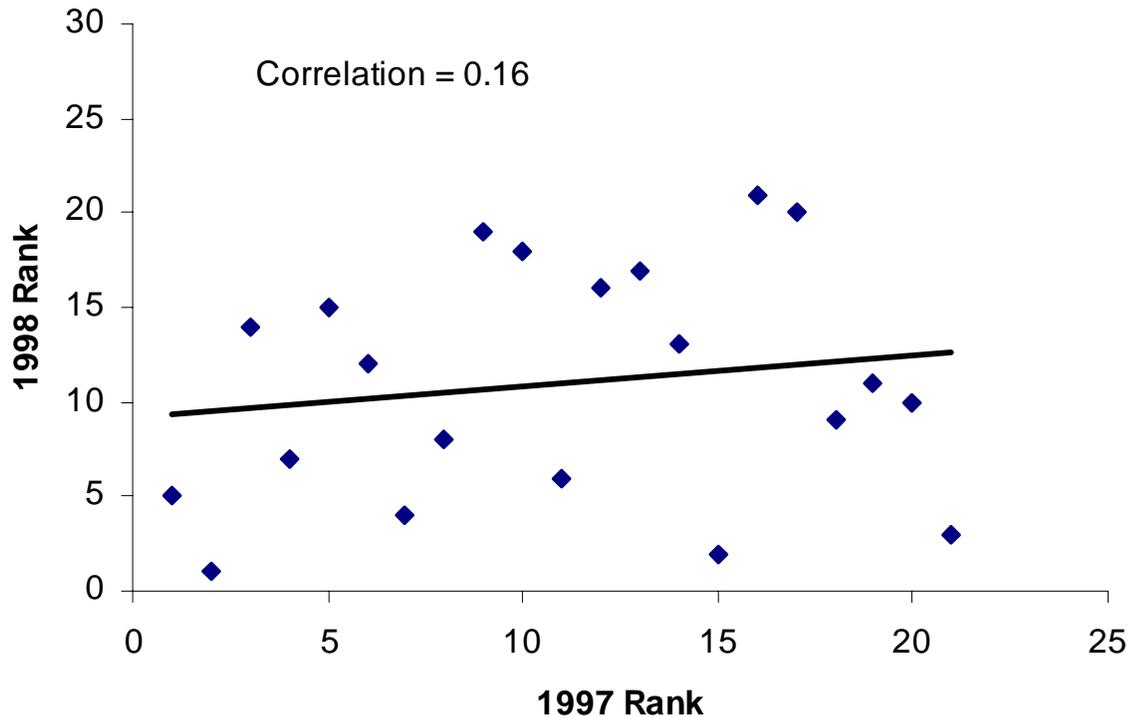
Advisory Service Program Rank, Soybeans, 1995 vs. 1996



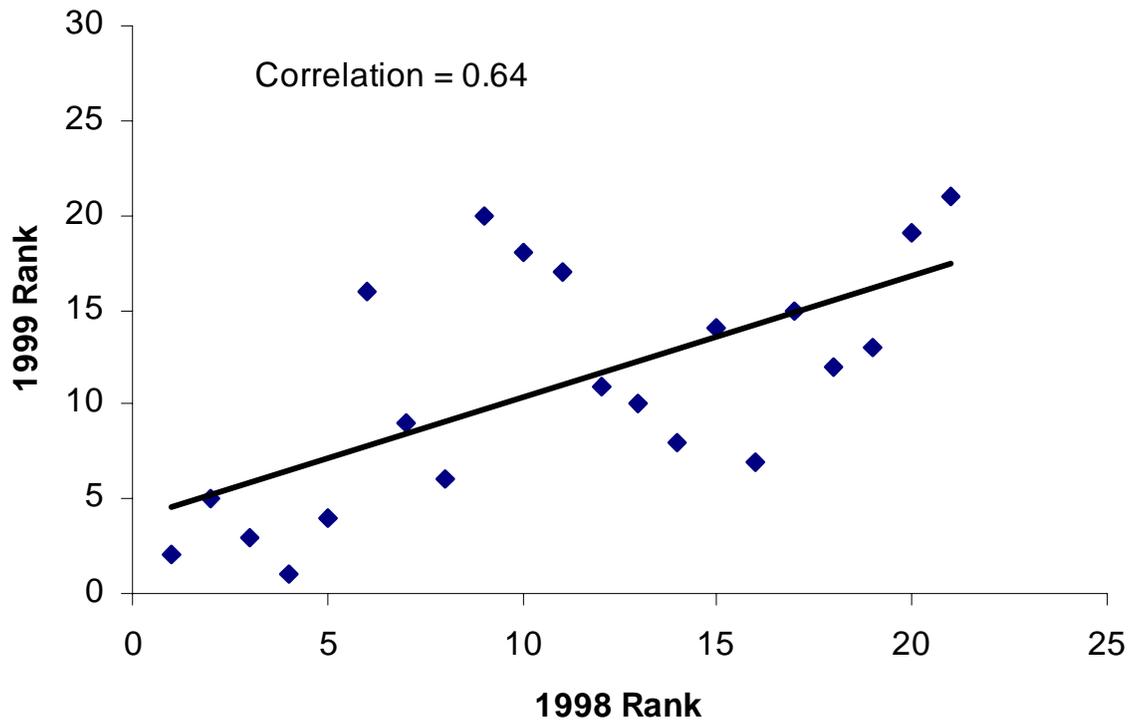
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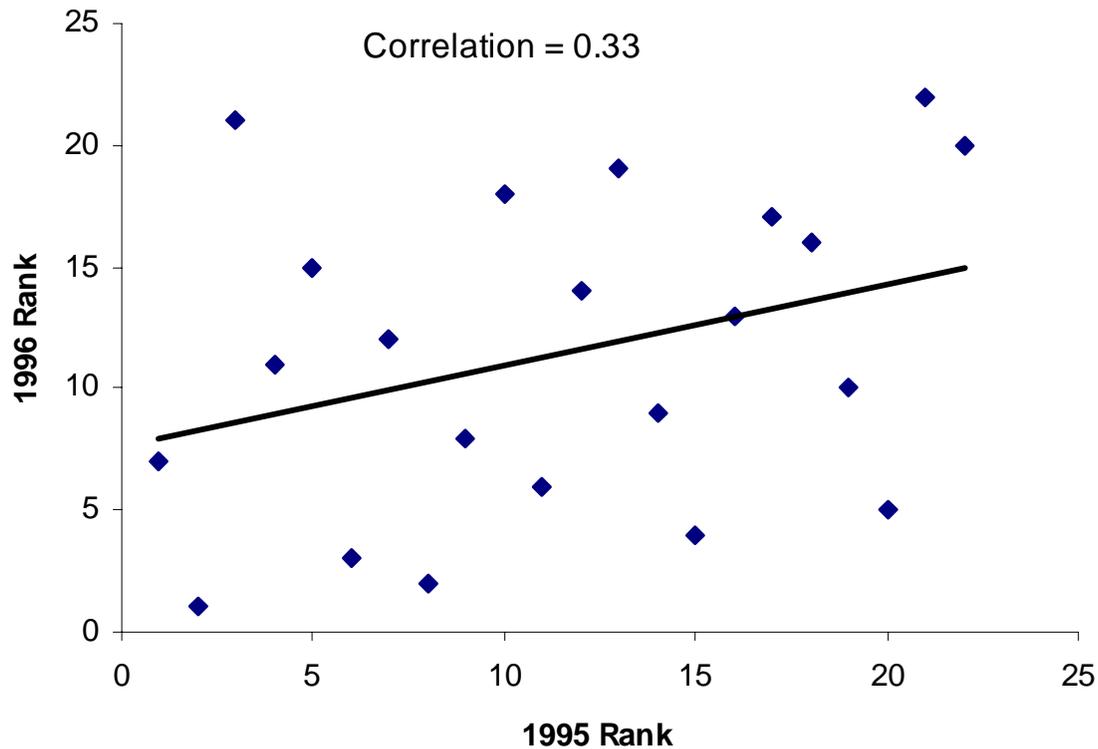
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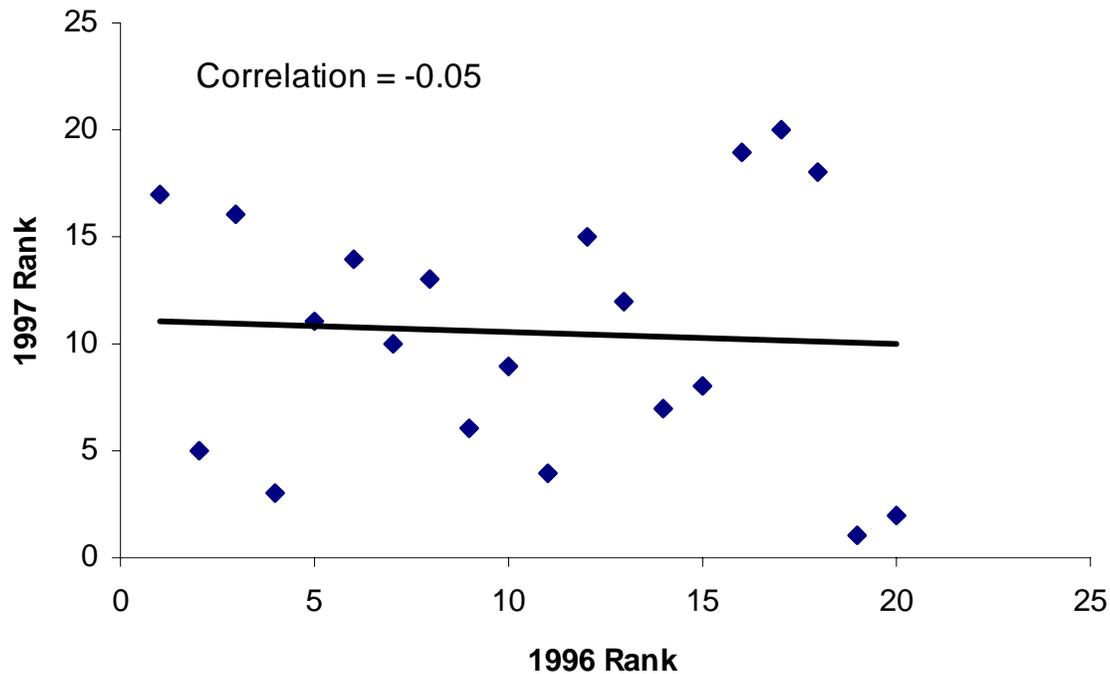
Advisory Service Program Rank, Soybeans, 1998 vs. 1999



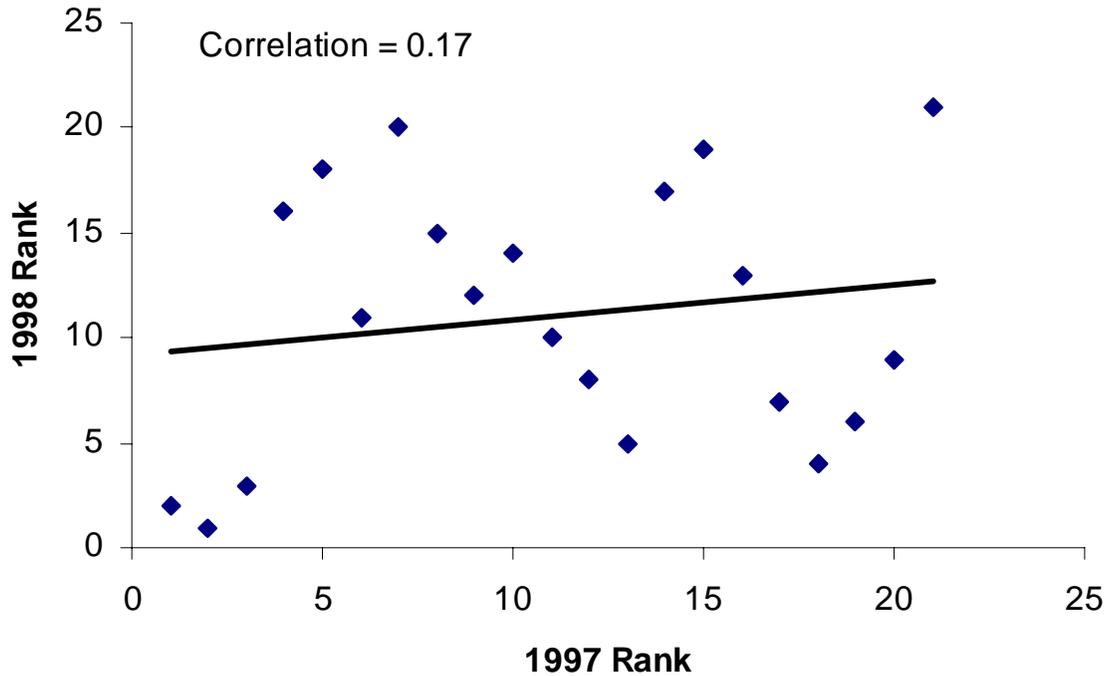
Advisory Service Program Rank, 50/50 Revenue, 1995 vs. 1996



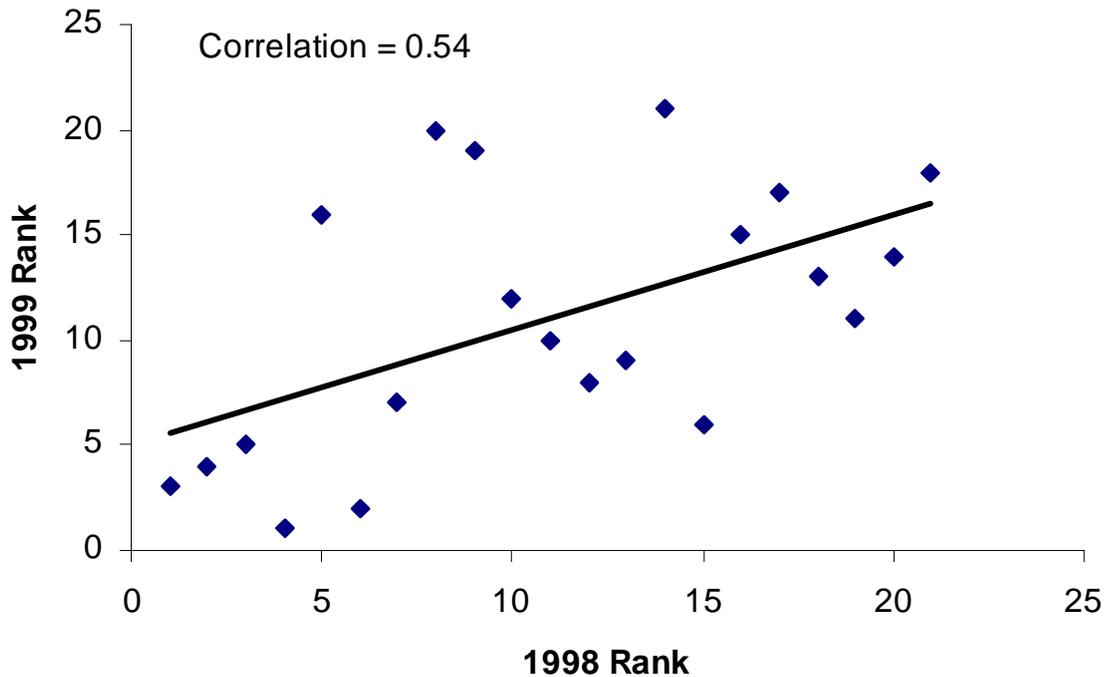
Advisory Service Program Rank, 50/50 Revenue, 1996 vs. 1997



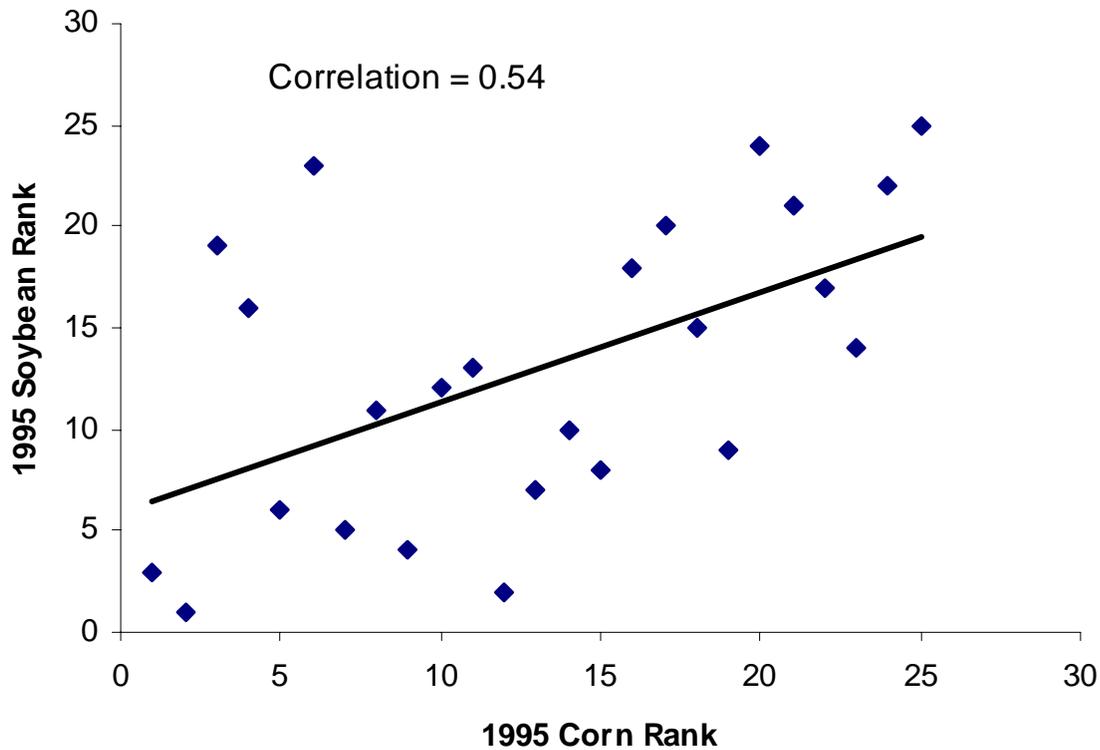
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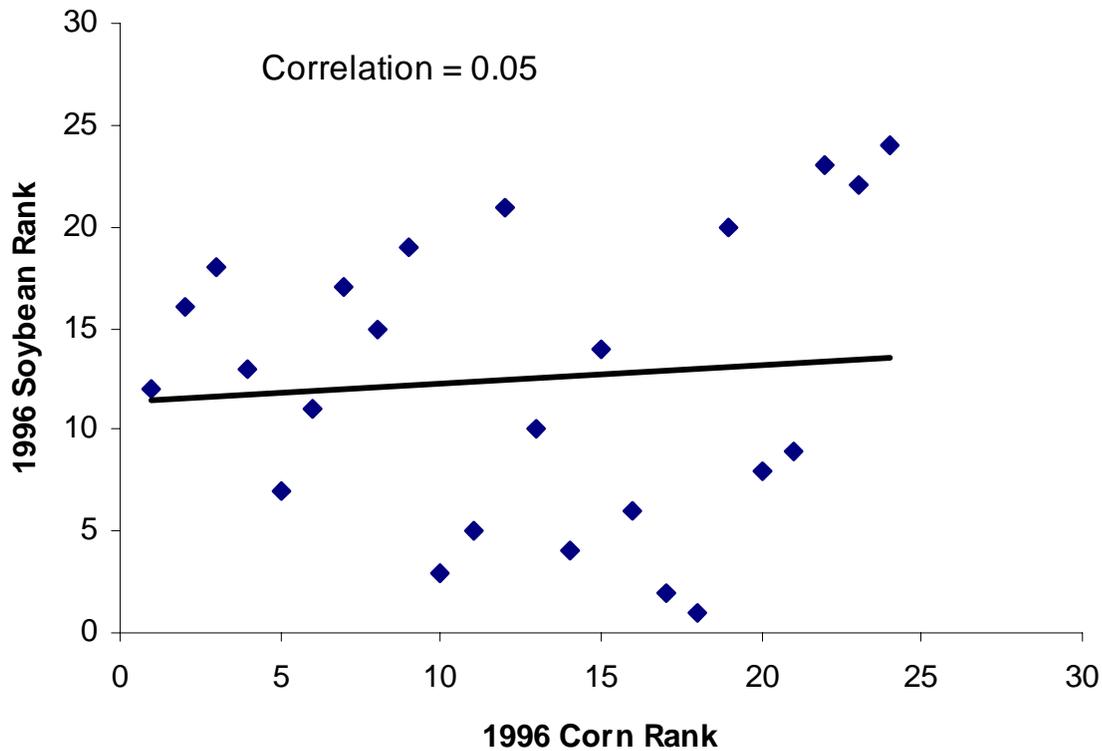
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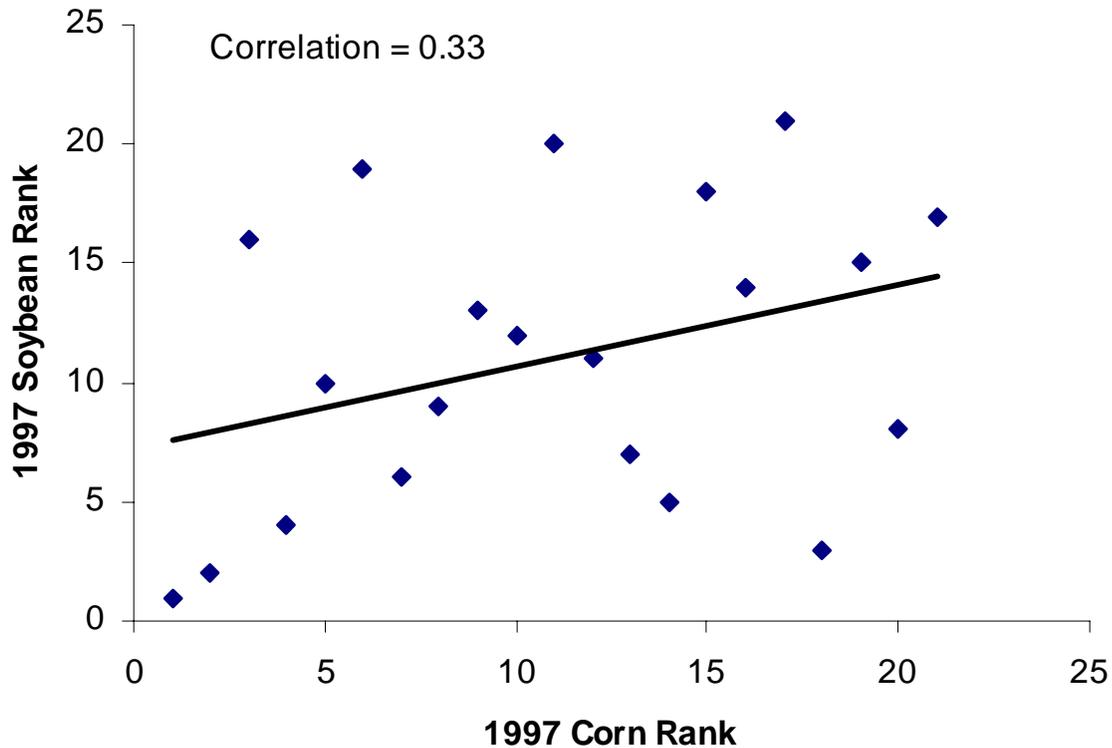
Advisory Service Program Rank, Corn vs. Soybeans, 1995



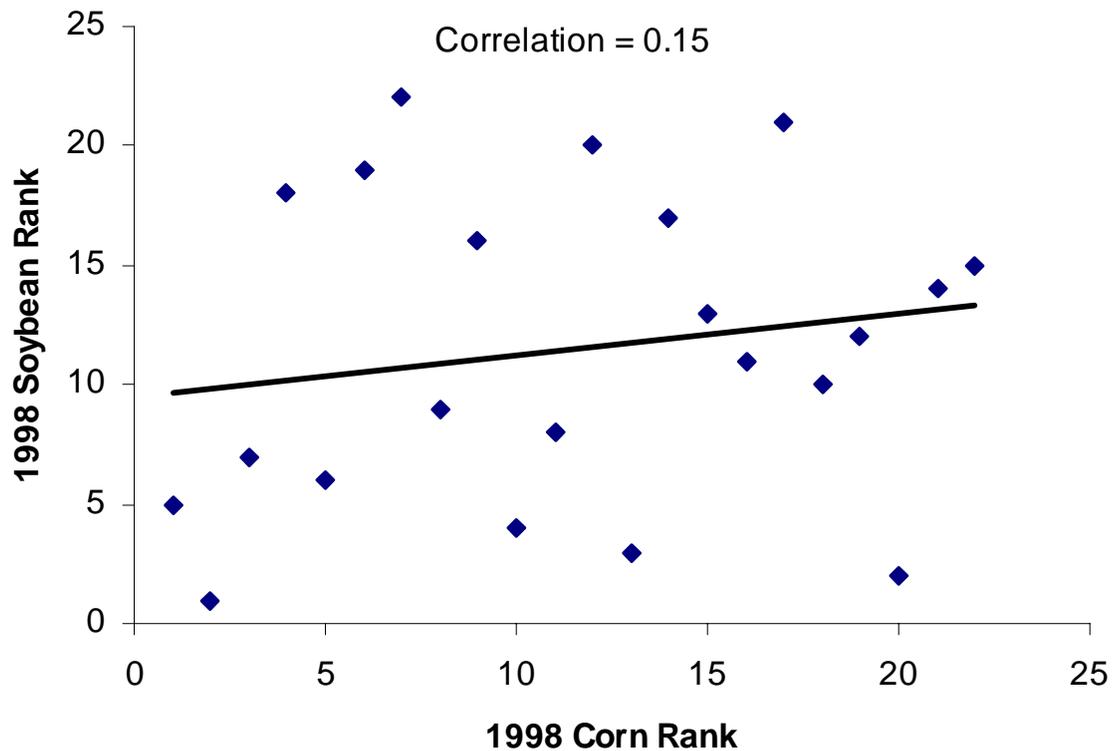
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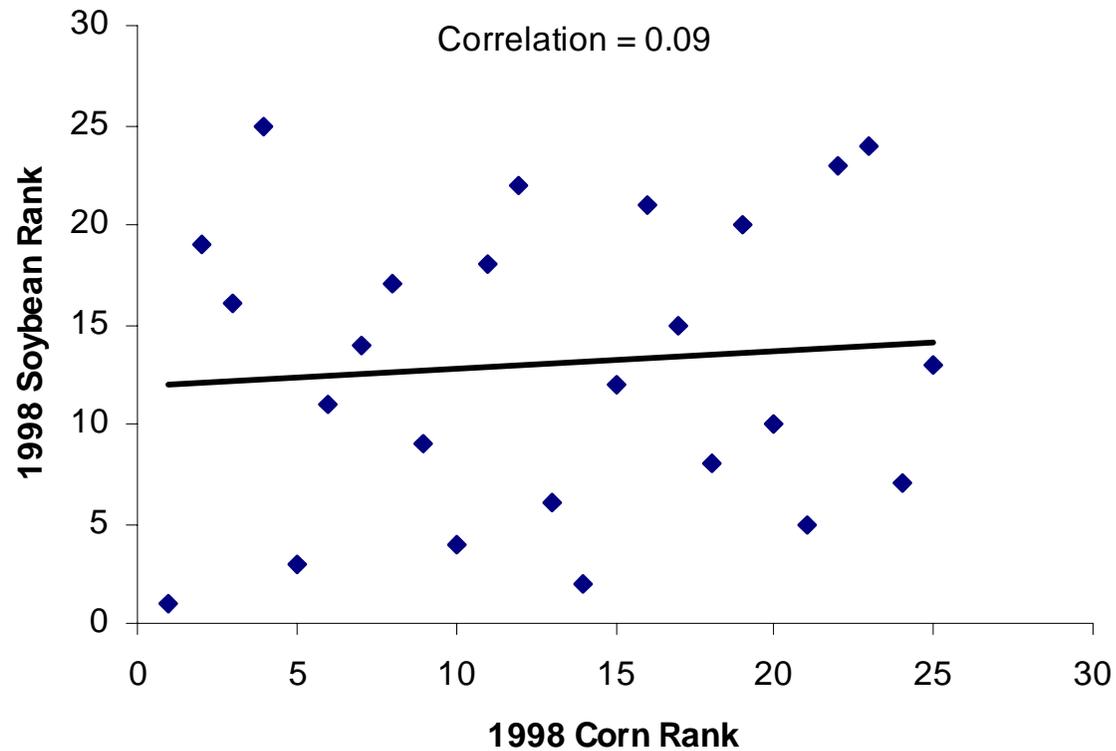
Advisory Service Program Rank, Corn vs. Soybeans, 1997



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Advisory Service Program Rank, Corn vs. Soybeans, 1999



Summary of Pricing Performance of Advisory Services

- Little evidence that net advisory prices exceed market benchmark in corn
- Substantial evidence net advisory prices exceed market benchmark in soybeans (+16 cents/bu.)
- Modest evidence that services exceed market benchmark for corn and soybean revenue (\$3/acre)
- Few services have prices in the top 1/3 of price range for corn or soybeans

Summary of Pricing Performance of Advisory Services

- Better pricing performance tends to come at the cost of more risk
- Few services outperform the market when both return and risk are considered
- Quite difficult to predict “winners” and “losers” based on past pricing performance

Overall: Tough to beat the market



<http://web.aces.uiuc.edu/farm.doc/>

Grain Marketing: A New Approach

What Is My Grain Marketing Track Record?

- Good? _____
- Average? _____
- Poor? _____

Average Price Received Compared to a Realistic Benchmark

- Last Year? _____
- 3 Year Average? _____
- 5 Year Average? _____

Yes, I'm Good!

- Inclined to be an Active Marketer

Active Marketer Needs:

- Information
- Analysis
- Education
- Advisor

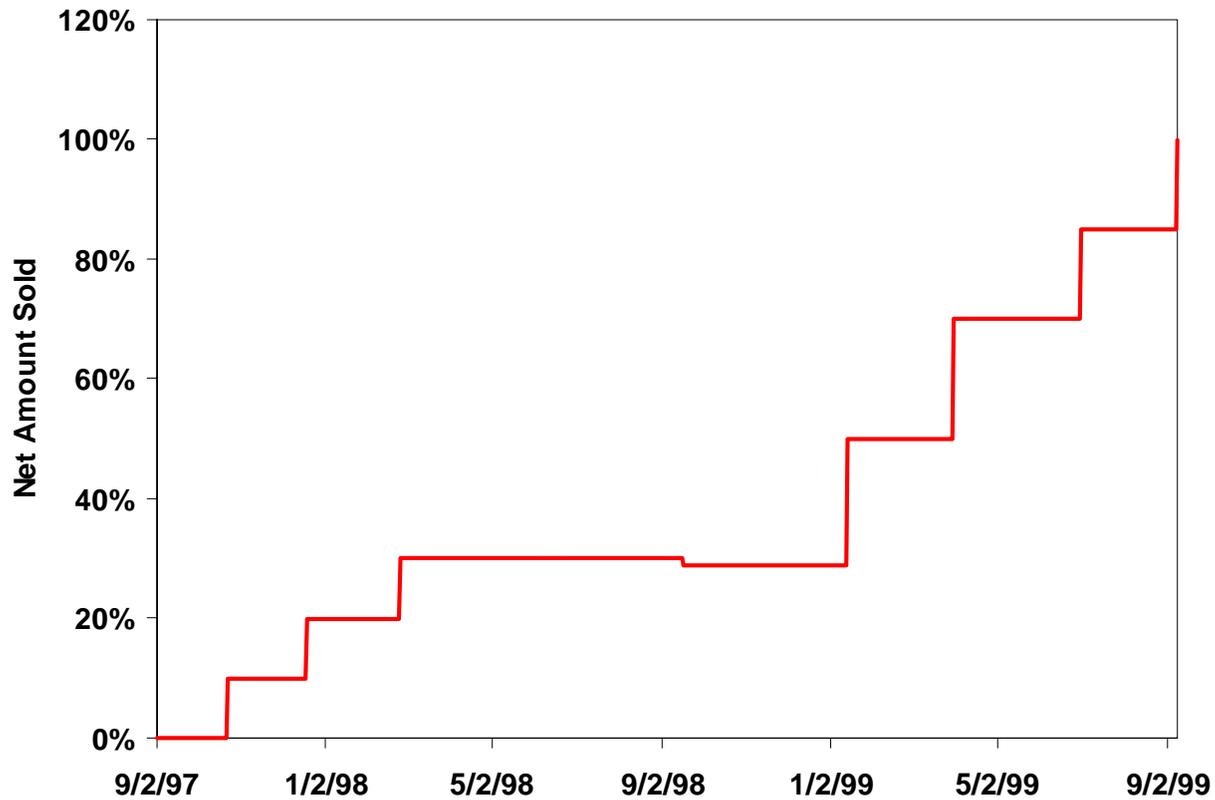
Information, Analysis, Education

- <http://web.aces.uiuc.edu/farm.doc>
- University of Illinois Extension
- Private Sector

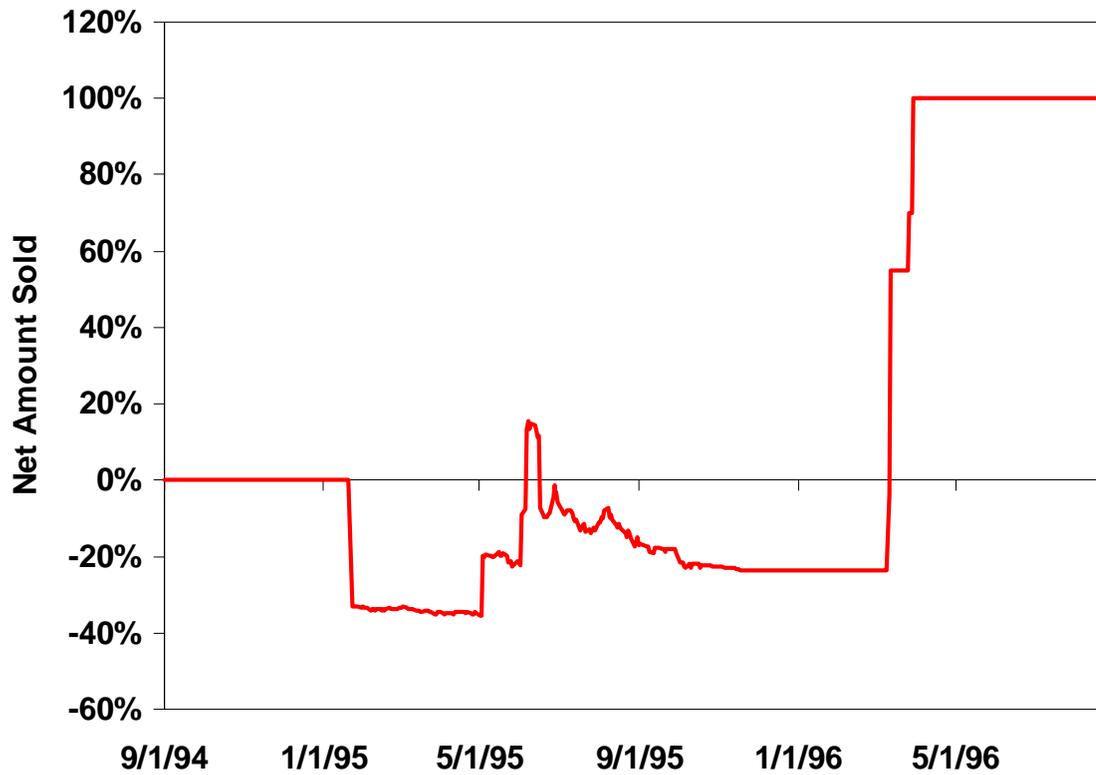
Choosing An Advisor

- Past Performance
- Marketing Profile

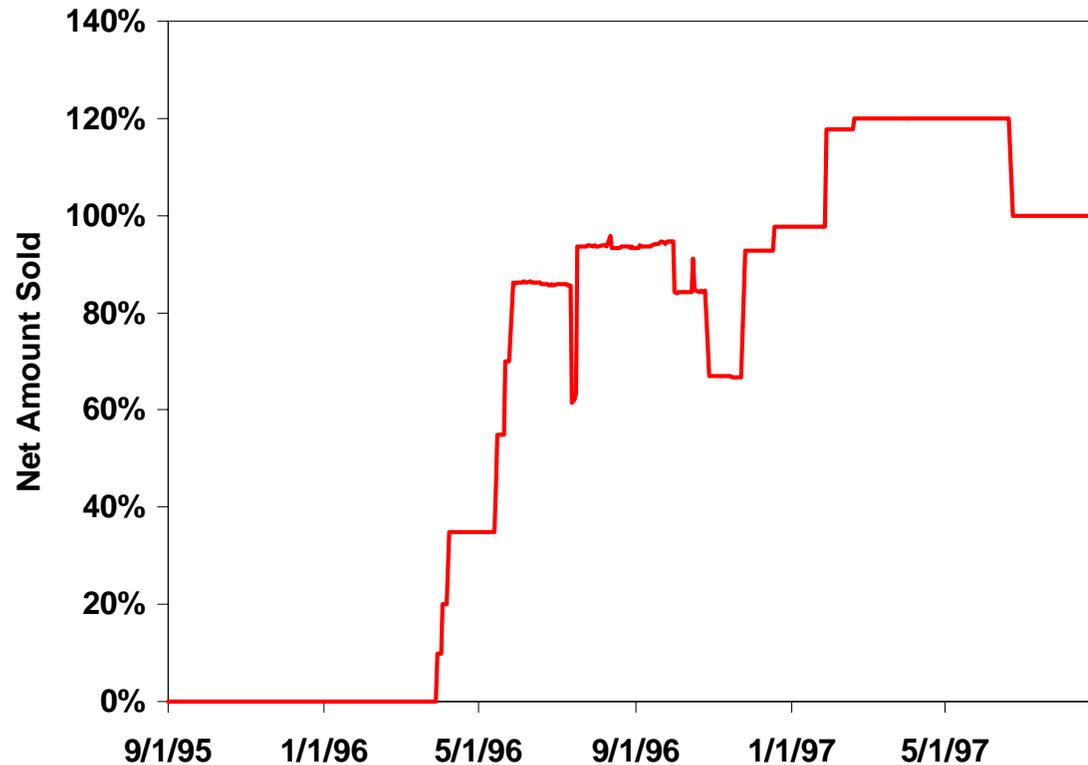
1998 Corn Marketing Profile for Pro Farmer Cash Program



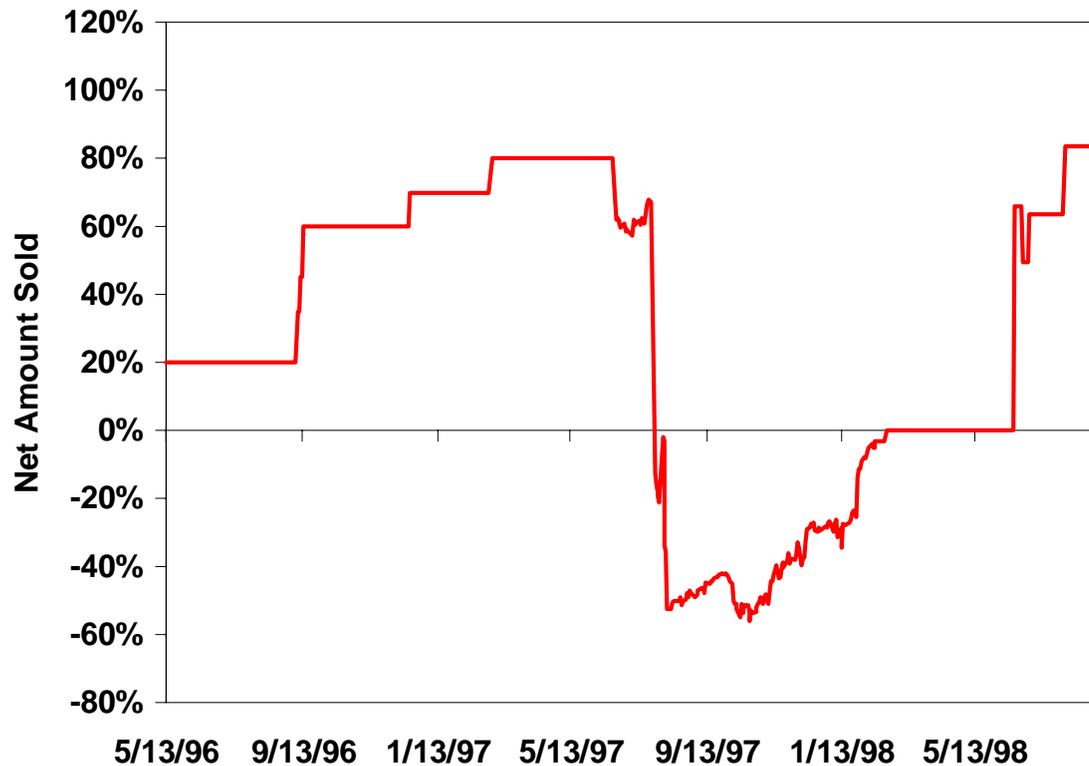
1995 Corn Marketing Profile for Ag Resource Program



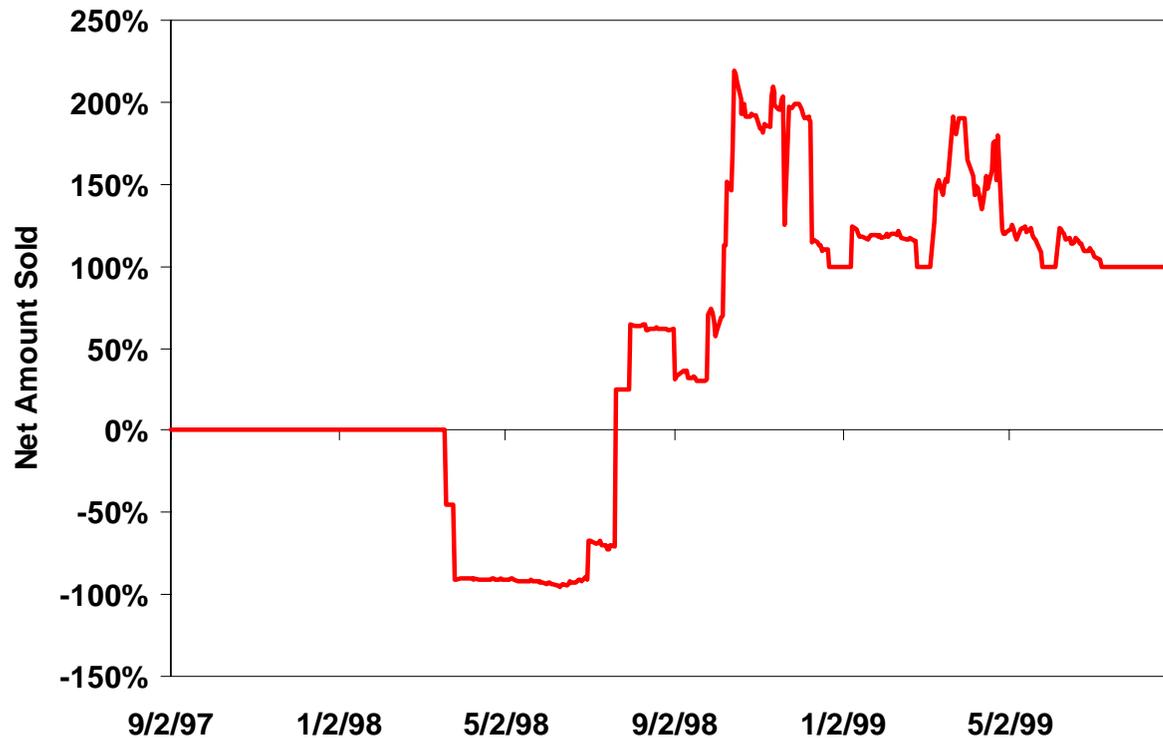
1996 Corn Marketing Profile for Ag Resource Program



1997 Corn Marketing Profile for Ag Resource Program



1998 Corn Marketing Profile for Ag Resource Program



I'm A Poor Marketer

- Inclined to be a Passive Marketer

Select A Passive Strategy

- Indexing
- Mechanical Do-It-Yourself

Indexing

- Select an External Source to Trigger Sales

Comparison of 24-Month Market Benchmark to Mechanical Strategy - Corn

Corn		
	24-Month Average Cash Price	Mechanical Strategy
1990-91	2.16	2.12
1991-92	2.23	2.24
1992-93	2.07	2.07
1993-94	2.25	2.29
1994-95	2.17	2.14
1995-96	2.90	2.94
1996-97	2.65	2.70
1997-98	2.33	2.38
1998-99	2.24	2.13
1999-00	2.05	1.90
Average	2.31	2.29
Std. Dev.	0.27	0.31

Comparison of 24-Month Market Benchmark to Mechanical Strategy - Soybeans

Soybeans		
	24-Month Average Cash Price	Mechanical Strategy
1990-91	5.56	5.53
1991-92	5.56	5.58
1992-93	5.61	5.66
1993-94	5.99	6.09
1994-95	5.59	5.65
1995-96	6.26	6.30
1996-97	7.08	7.19
1997-98	6.30	6.43
1998-99	5.86	5.90
1999-00	5.50	5.49
Average	5.93	5.98
Std. Dev.	0.50	0.54

Mechanical Strategy

- Price Equal Amounts Every Other Month for Two Years
- Will You Do It?

Portfolio of Active and Passive

- Percent of Crop
- Corn/Soybeans

The End



- An active marketer believes they can beat the market, so they should adopt strategies that attempt to time pricing decisions during periods of high prices.
- A passive marketer does not believe they can beat the market, so they should adopt strategies that simply achieve the average price offered by the market.
- Farmers should consider marketing in a portfolio context where the two components are active and passive marketing.
- A key decision is the weights that a farmer places on the active and passive marketing components.