

Beltwide Cotton Conferences

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Sector Simulation Analysis of Georgia Cotton Production

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Sector Model

- Data is aggregated at the state level.
- Model simulation represents average farm results.
- Results lead to inferences that are generalizations for the cotton production sector.
- Cotton production sector includes farms with diversified crop production.

Data

- Production costs are non-irrigated and irrigated weighted averages from 2008 UGA crop enterprise budgets.
- Expected US 2008 prices received are developed by FAPRI (Missouri & Iowa State) and are reported by AFPC (Texas A&M).
- Yields are trend adjusted averages from NASS. GA prices are from NASS.
- Base DP and CCP yields are from FSA.
- AWP is from FAS.

Prices¹ and Yields², 2008

	Peanuts	Cotton	Corn
GA Price	474	0.634	3.42
US Price	483	0.630	3.28
Expected Yield	3,046	805	127
DP Yield	3,152	688	62
CCP Yield	3,152	717	68
Harvested Acreage	350	600	200
Base Acreage	350	700	100

¹Peanuts: \$/ton, Cotton: cents/lb., Corn: \$/bu.

²Peanuts: lbs./acre, Cotton: lbs./acre, Corn: bu./acre

Stochastic Simulation

- Simulated yields and prices utilize 2008 expected values and correlations in variables over 1997-2006.
- Stochastic simulation is with the empirical distribution in Simetar (Richardson, Texas A&M).
- This methodology incorporates the correlation between variables without assuming an underlying distribution.
- Simulation applies commodity programs from 2002 Farm Bill.

GA Cotton Production, 2008

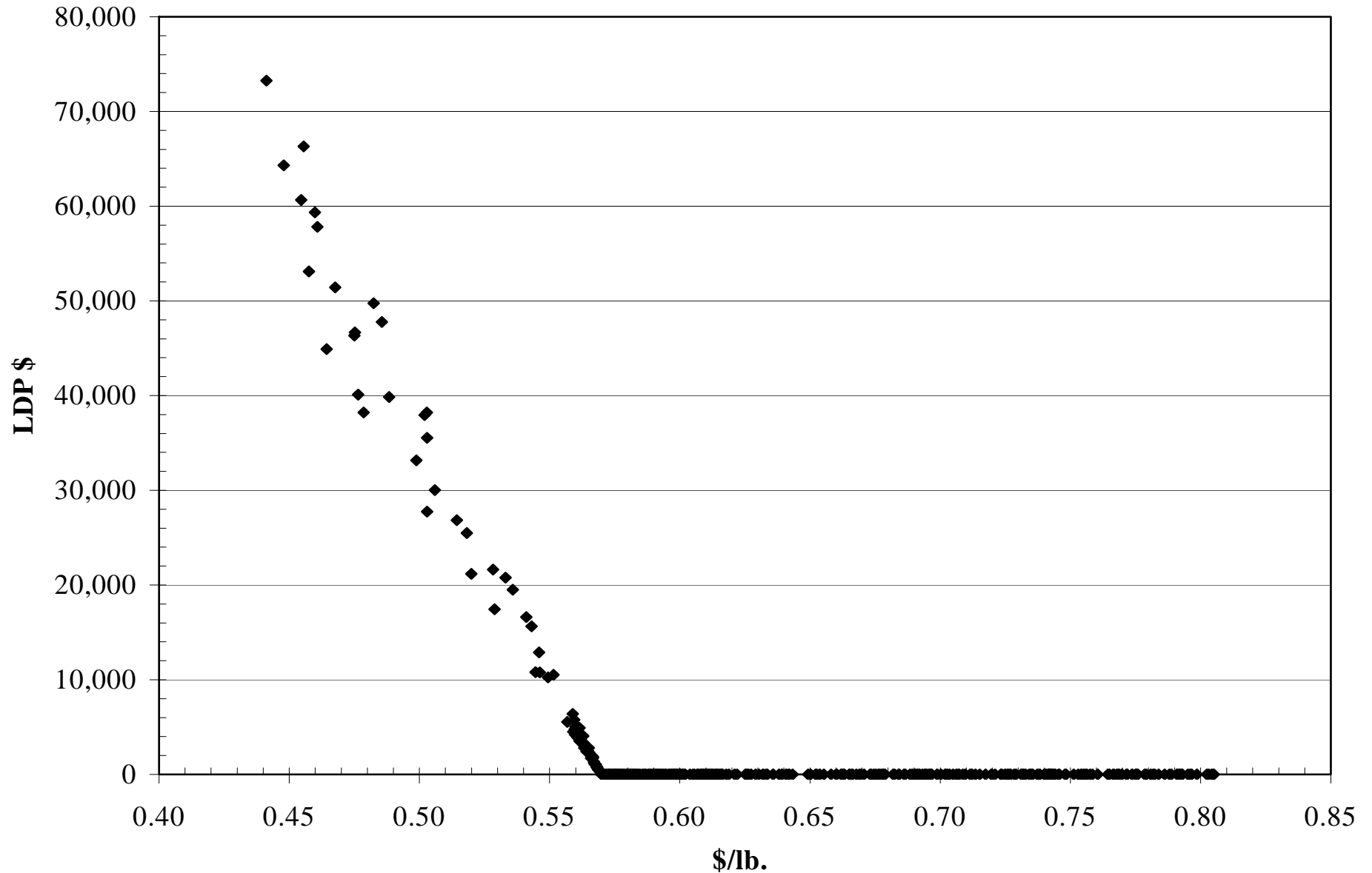
700 acres cotton

Cotton Costs and Returns, per Acre

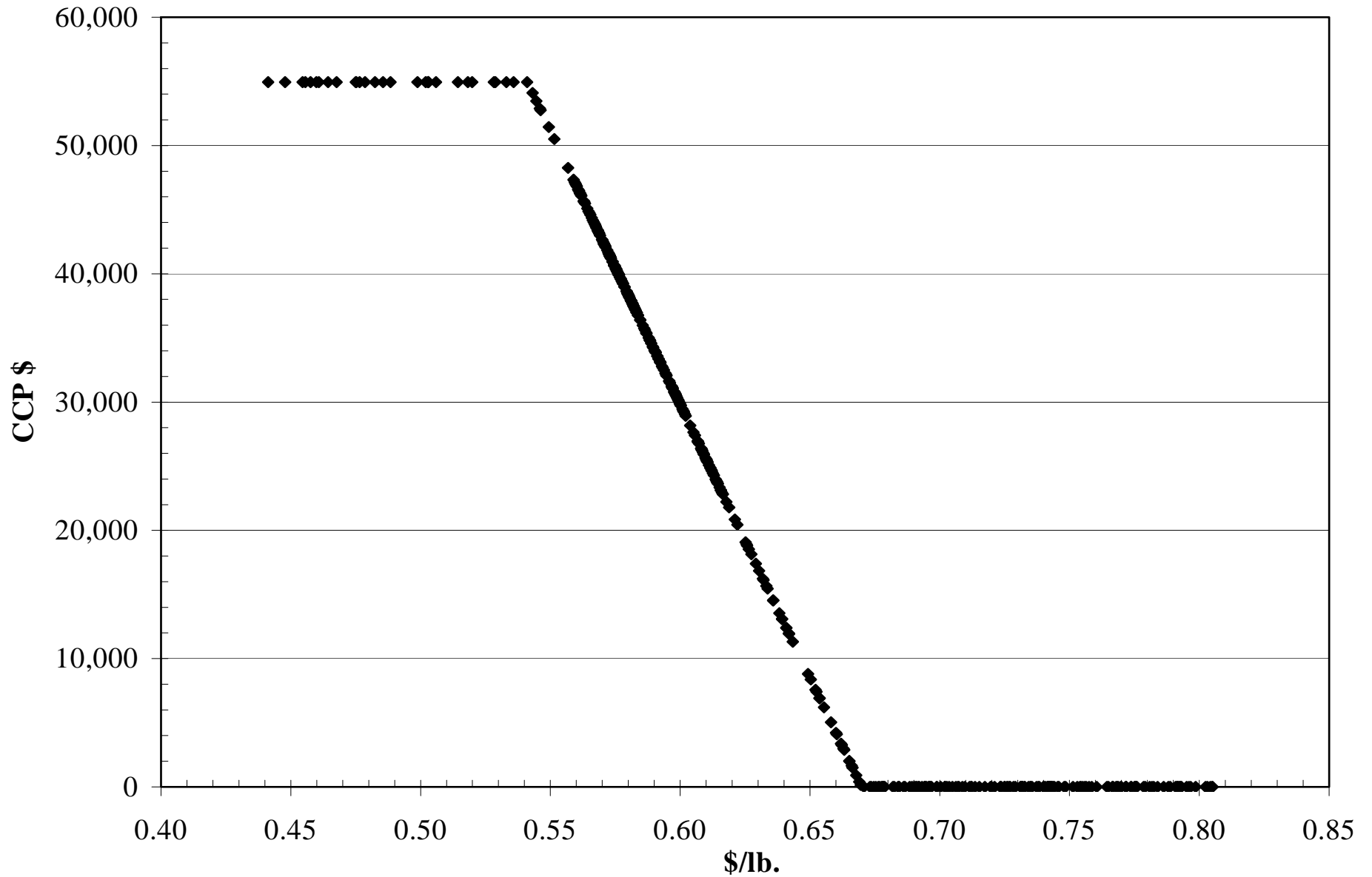
	<i>-dollars-</i>
Lint Revenue	512
Seed Revenue ¹	65
Government Payments	75
Variable Costs	462
Fixed Costs	110
Net Returns	80

¹Cottonseed Price = \$125/ton

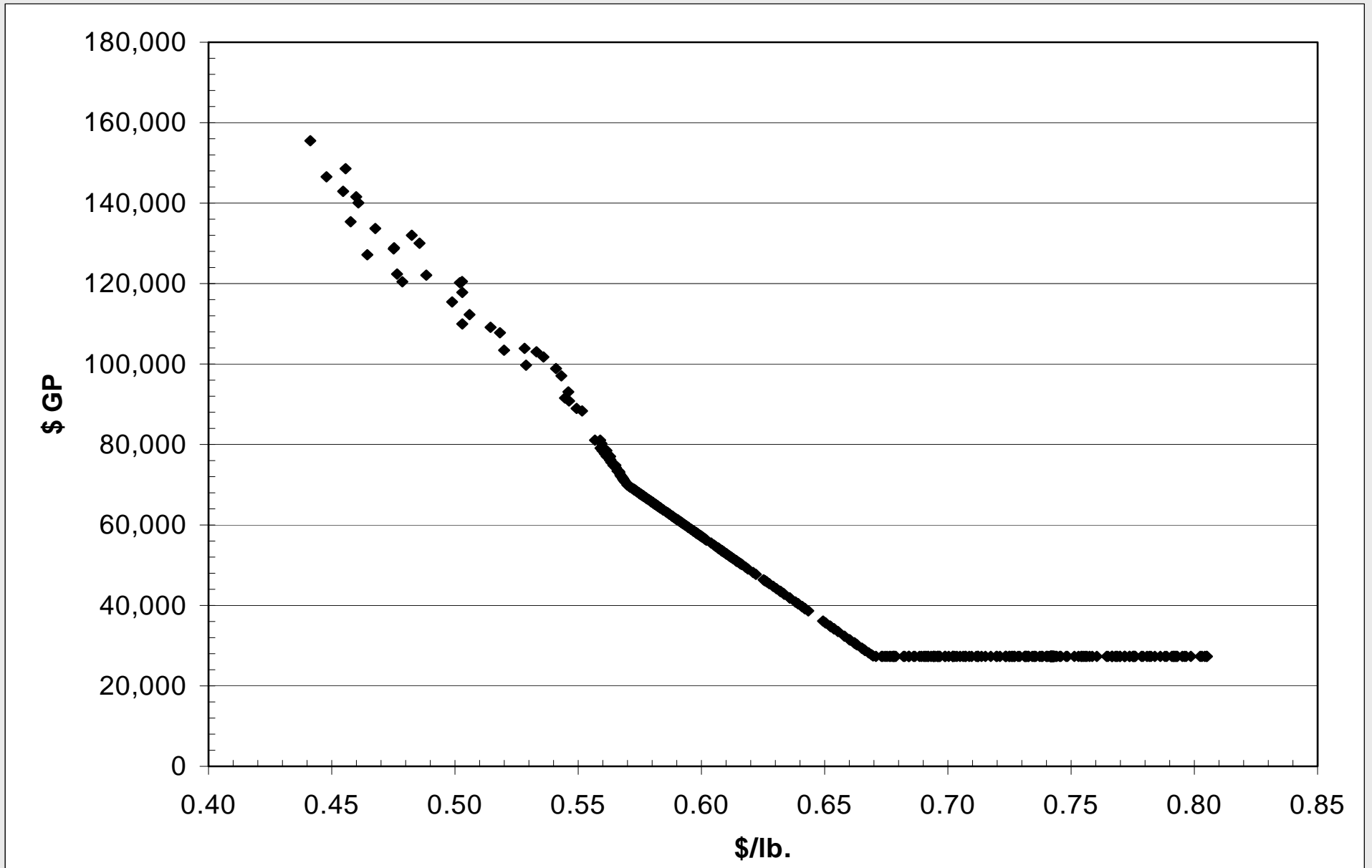
Scatter Plot of Cotton Price & LDP



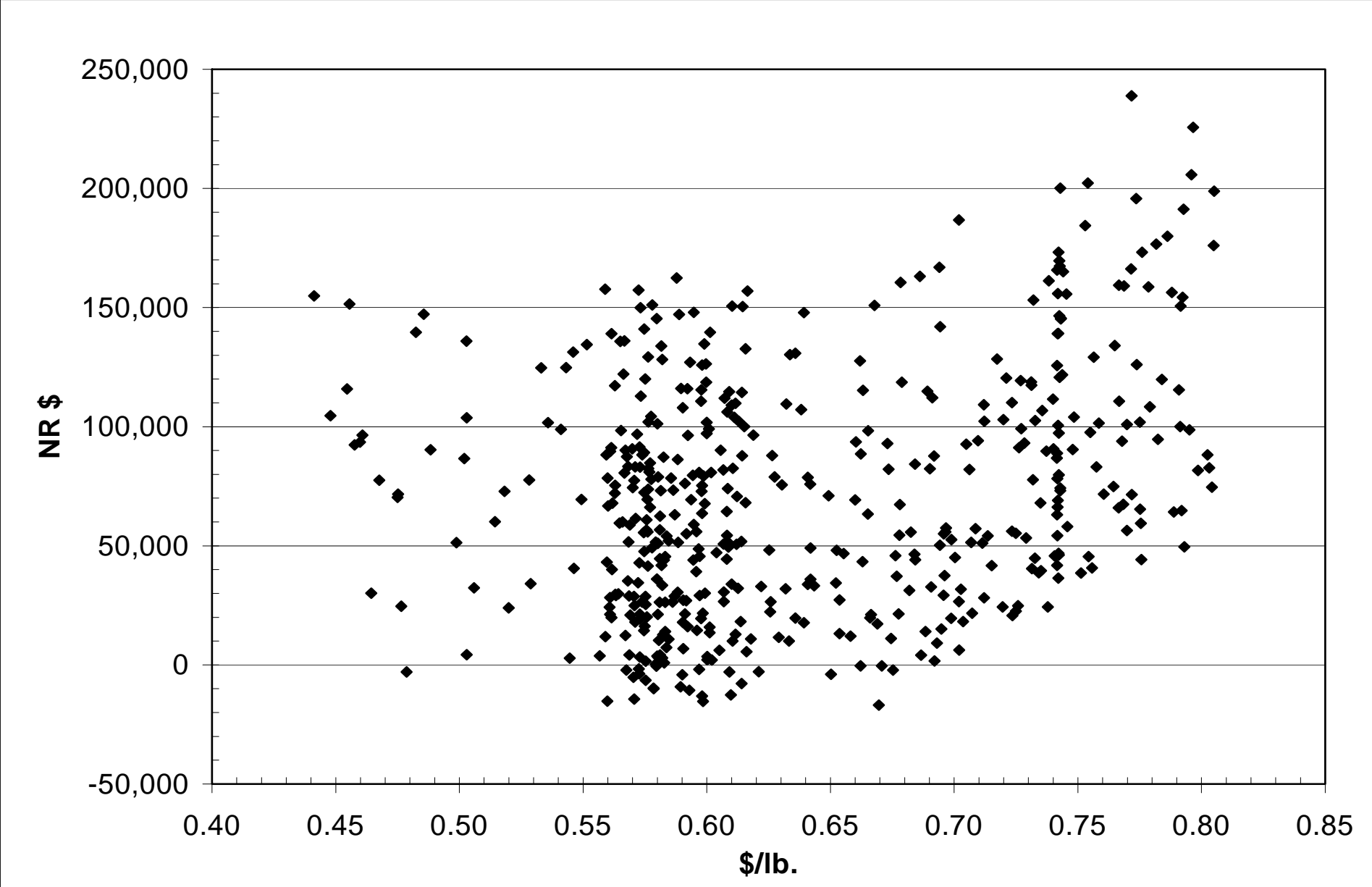
Scatter Plot of Cotton Price & CCP



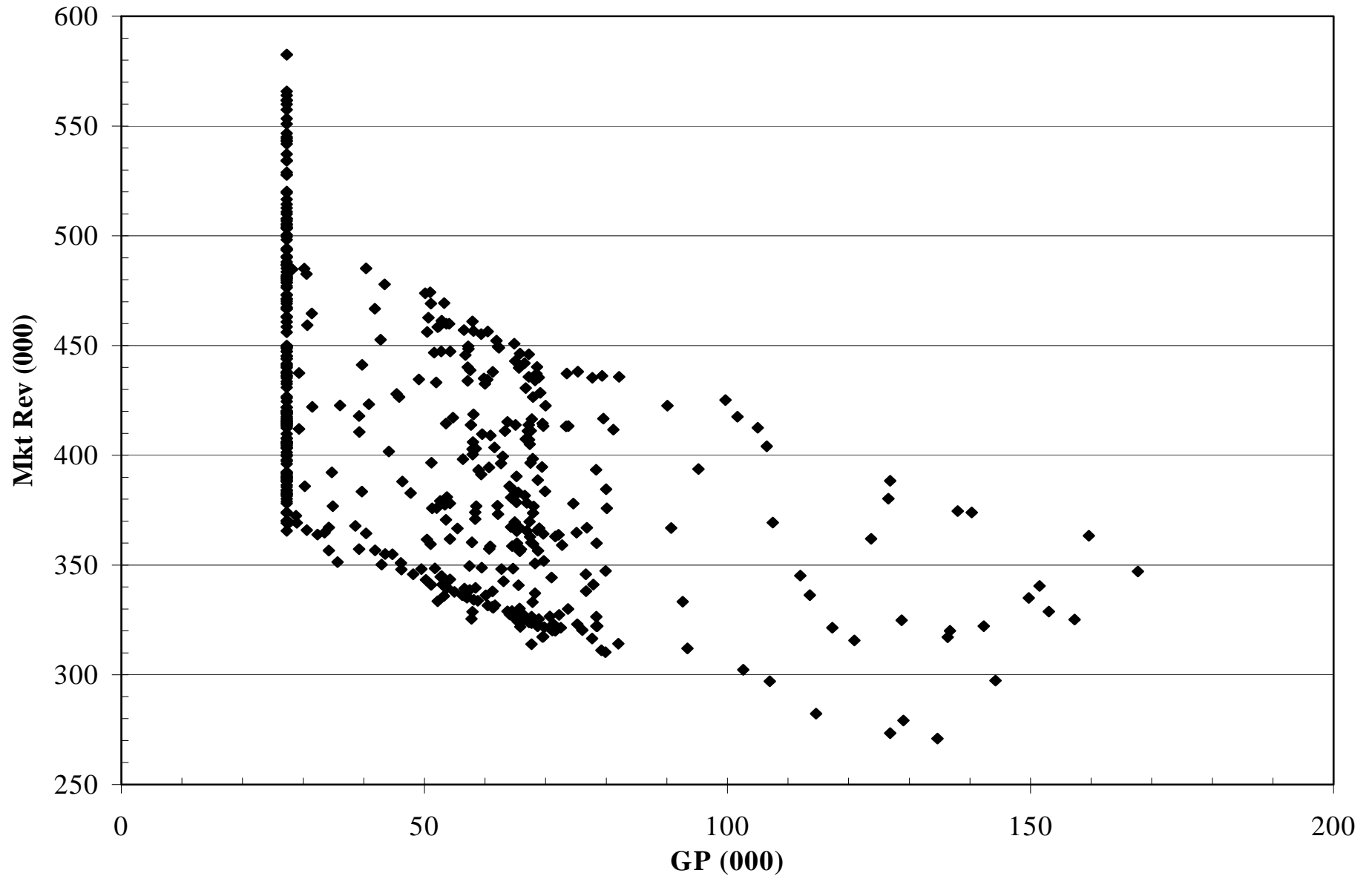
Scatter Plot of Cotton Price & GP



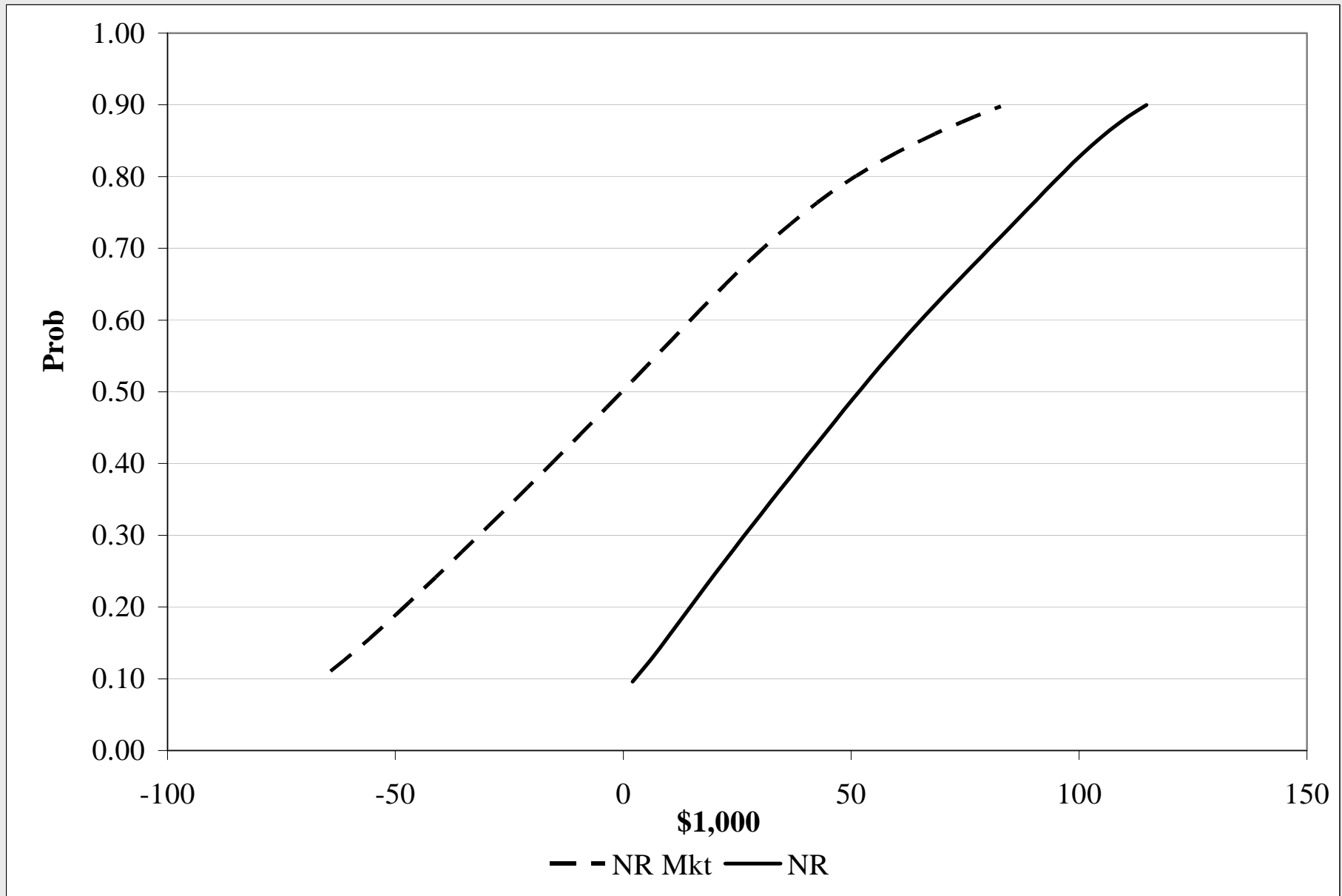
Scatter Plot of Cotton Price & Net Returns



Scatter Plot of Market Revenue & GP



CDF of Cotton Net Returns, 700 Acres



Whole Farm, 1150 Acres

- 600 acres cotton
- 350 acres peanuts
- 200 acres corn

Costs and Returns, Whole Farm

-dollars-

Revenue	684,376
Government Payments	71,342
Variable Costs	537,723
Fixed Costs	136,357
Net Returns	81,638
Land Rent	34,500
Farm Income	47,138
Farm Income w/o GP	-24,204

Input Costs Changes

- Increased prices have affected fertilizer more than other inputs.
- Corn uses more fertilizer per acre than cotton or peanuts.
- Price received for cottonseed sold has increased.
- Cottonseed sold deducts from ginning costs.

Variable Costs, per Acre

Peanuts: \$517

Cotton: \$472 (-\$65 cottonseed= \$407)

Corn: \$383

Difference between net cotton costs and corn costs has decreased from \$107 in 2007 to \$24 in 2008.

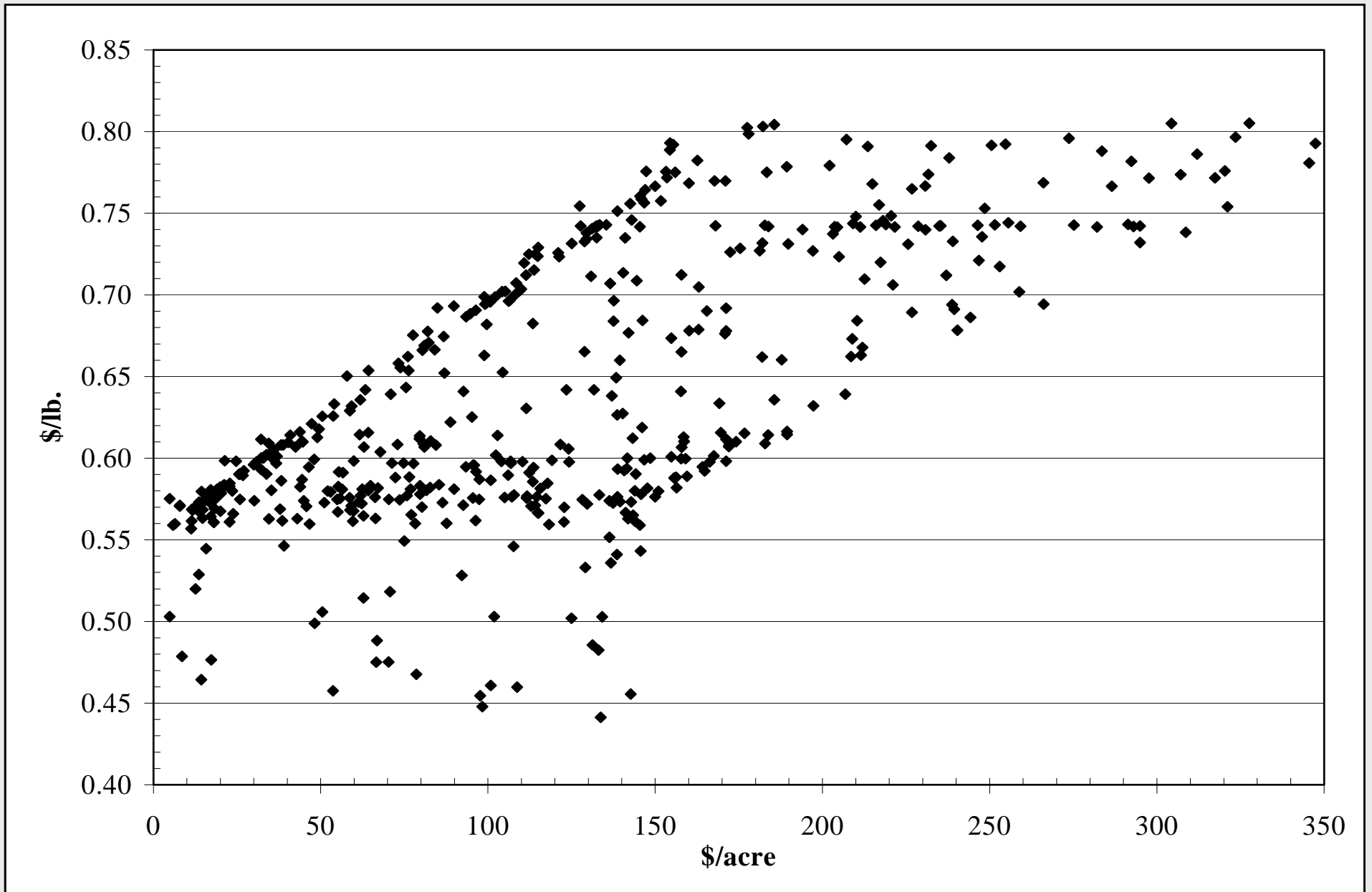
Returns to Variable Costs

Crop	\$/acre
Peanuts	188
Cotton	120
Corn	58

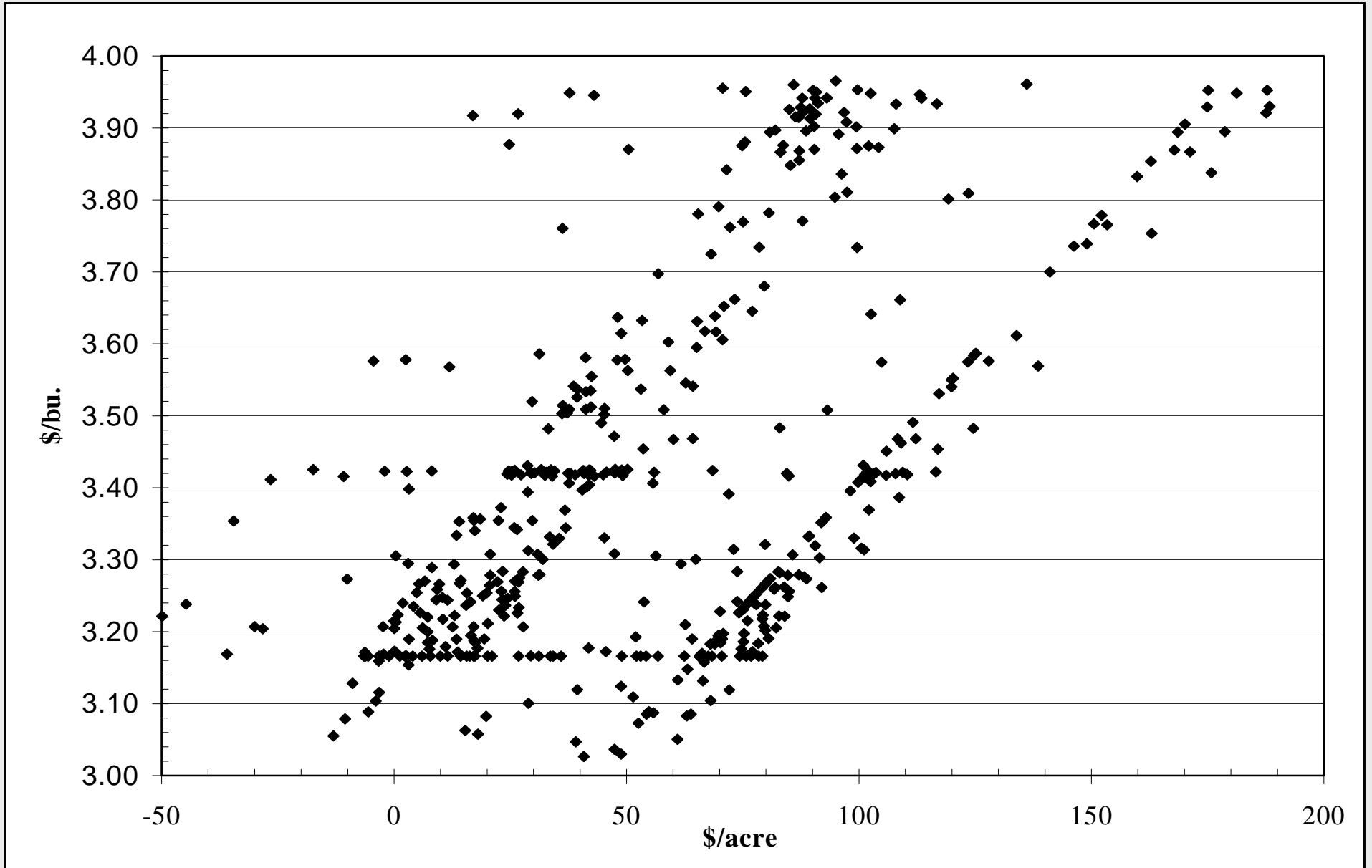
RVC Stochastic Sensitivity Analysis

- Average RVC is determined from price intersection and midpoint RVC on the following two charts.
- As cotton price approaches \$0.70/lb., RVC approaches \$170/acre.
- As corn price approaches \$4.00/bu., RVC approaches \$120/acre.

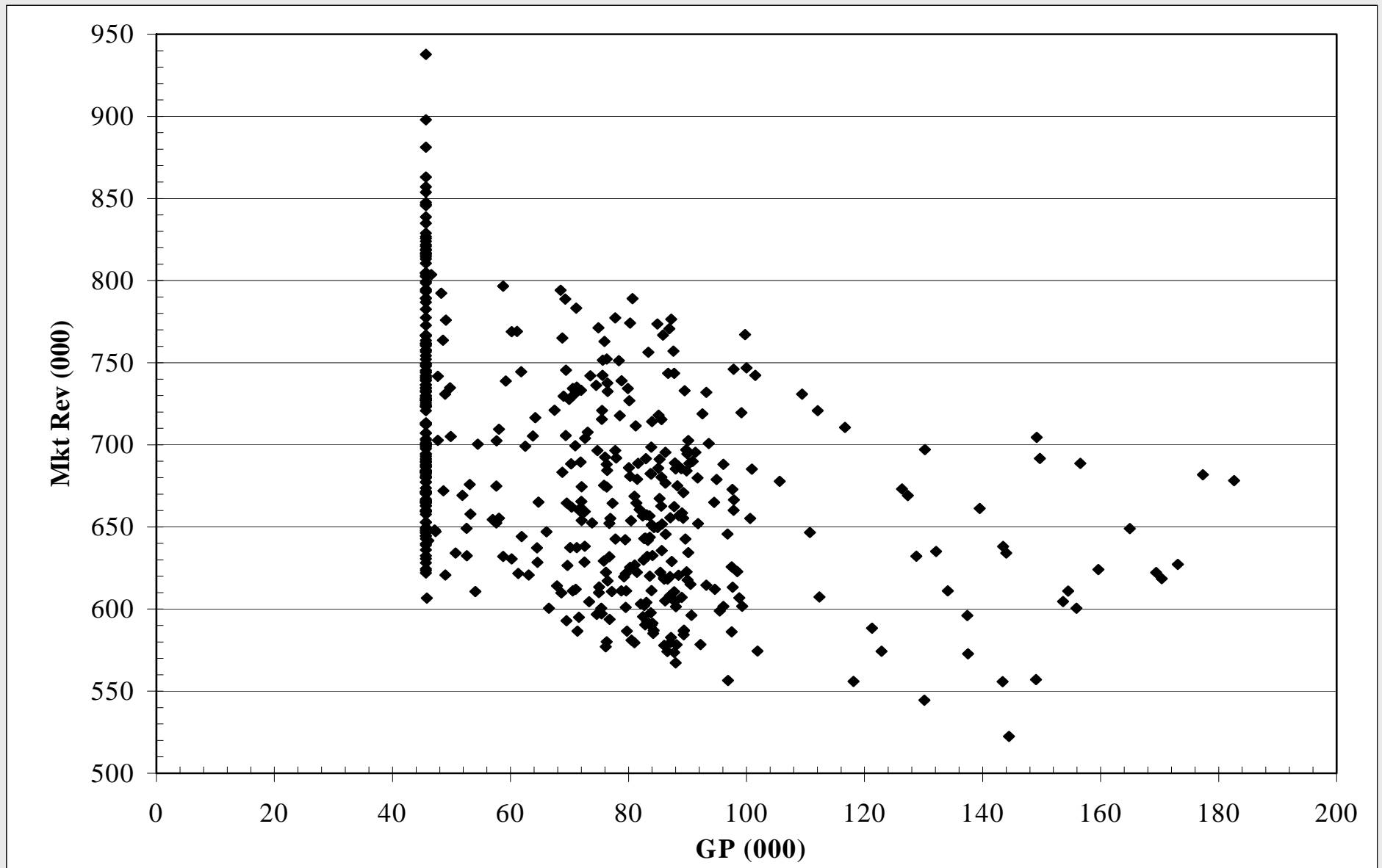
Scatter Plot of Cotton Price and RVC



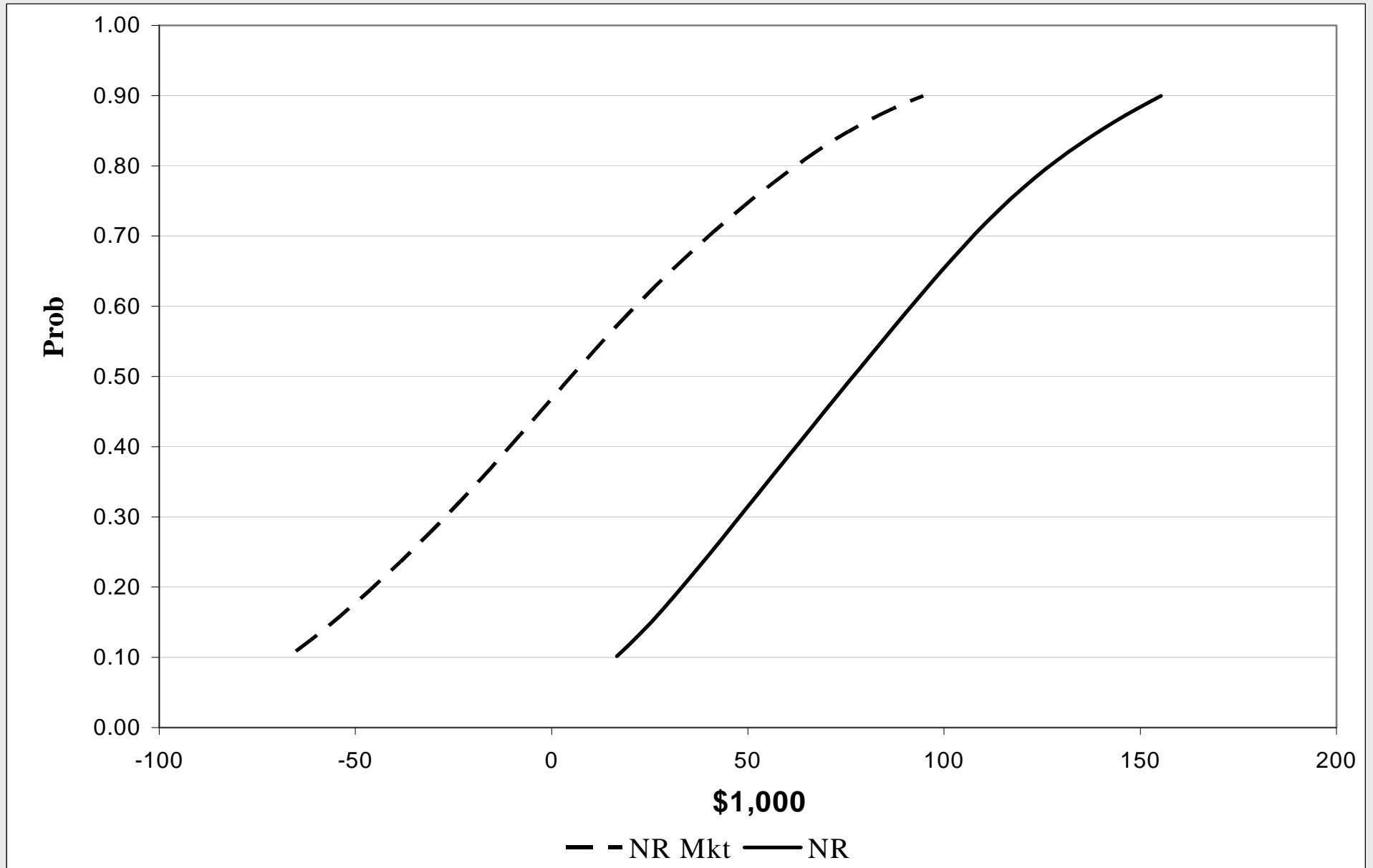
Scatter Plot of Corn Price and RVC



Scatter Plot of Market Revenue & GP, Whole Farm



CDF of Whole Farm Net Returns, 1150 Acres



Summary

- GP declines as cotton prices increase.
- Market returns and GP are substitutes.
- Net returns increase only after GP reaches a minimum – at prices less than \$0.67, GP maintains NR within a constant range.
- GP reduces probability of NR less than \$0.
- Average farm with cotton, peanuts, and corn has average farm income of -\$24,204 without GP.

Questions and Comments