Econ 339X Spring 2010

Homework Due 4/13/2010
20 points possible

True or False (one point each):

T F 1. Over half of the U.S. corn crop is typically planted by the middle of May.

T F 2. There are two triggers for the ACRE program, a state-level revenue trigger and a farm-level revenue trigger.

T F 3. SURE pays the entire difference between the farm guarantee and the actual farm revenue.

Short answer (one point each):

4. With a call option, the buyer pays the premium and has the right, but not the obligation, to

______________ a futures contract at the strike price.

5. What is the most common reason crops fail? ___________________________

Long answer (five points each, please show your work):

6. Use the futures and options data on the back. Assume historical expected basis of -$0.25 per bushel and a commission of $0.01 per bushel for both crops.
   a) What would be the floor price for a $4.20 put option on Dec. 2010 corn?
   b) Show me one futures or options strategy that would set a net price for a soybean producer above $8.70 per bushel.
   c) Show me one call option strategy that would set a net price for a corn processor below $3.70 per bushel.
   d) If I buy a $4.00 put option on Dec. 2010 corn today and hold it until maturity, what's my net price for corn if the basis shift to -$0.35 and the futures price is $3.25 per bushel?

7. For this question, assume the farm has an expected corn yield of 200 bushels per acre. The insurance prices and premiums are given in the slides from last week.
   a) What would be the net insurance payment (payment minus premium) if you bought 75% yield insurance and had an actual corn yield in 2010 of 122 bushels per acre?
   b) What would be the net insurance payment if you bought 75% CRC insurance had the same yield as in part a), and the harvest price was $4.20 per bushel?

8. For 2010, the set-up for ACRE for Iowa corn is an expected state yield of 171 bushels per acre and an ACRE price guarantee of $3.83 per bushel. Your farm has an expected farm yield (based on a 5-year Olympic average) of 171 bushels per acre. You have also purchased crop insurance and paid $13.93 per acre for it.
   a) What are the ACRE revenue guarantee and the ACRE farm revenue trigger in this case?
   b) If, for 2010, the actual state yield is 160 bushels per acre, the actual farm yield is 180 bushels per acre, and the season-average price is $3.35 per bushel, then what is the ACRE payment rate?

All prices and premiums are listed in dollars per bushel

Dec. 2010 Corn						Nov. 2010 Soybeans					
Futures Price		3.7925				Futures Price		9.2225			
Options	Strike Price	Premium	Options	Strike Price	Premium	Options	Strike Price	Premium	Options	Strike Price	Premium
Put	2.20	0.0025	Call	1.00	2.7925	Put	5.40	0.00375	Call	2.00	7.2225
Put	2.30	0.00375	Call	1.40	2.3925	Put	6.00	0.00875	Call	3.00	6.2225
Put	2.40	0.00625	Call	2.80	1.0125	Put	6.20	0.01125	Call	7.00	2.2475
Put	2.50	0.00875	Call	2.90	0.925	Put	6.40	0.015	Call	7.40	1.8775
Put	2.60	0.0125	Call	3.00	0.84125	Put	6.80	0.025	Call	7.60	1.7
Put	2.70	0.0175	Call	3.20	0.68625	Put	7.00	0.0325	Call	8.00	1.36625
Put	2.80	0.025	Call	3.30	0.61625	Put	7.20	0.04625	Call	8.20	1.2125
Put	2.90	0.03625	Call	3.40	0.55125	Put	7.40	0.0625	Call	8.40	1.06875
Put	3.00	0.0525	Call	3.50	0.49125	Put	7.60	0.085	Call	8.60	0.93375
Put	3.10	0.0725	Call	3.60	0.4375	Put	7.80	0.11375	Call	8.80	0.81
Put	3.20	0.0975	Call	3.70	0.38875	Put	8.00	0.14875	Call	9.00	0.70125
Put	3.30	0.12625	Call	3.80	0.345	Put	8.20	0.195	Call	9.20	0.60625
Put	3.40	0.16125	Call	3.90	0.305	Put	8.40	0.25	Call	9.40	0.52875
Put	3.50	0.2	Call	4.00	0.27	Put	8.60	0.31375	Call	9.60	0.4575
Put	3.60	0.24625	Call	4.10	0.24	Put	8.80	0.39	Call	9.80	0.395
Put	3.70	0.29625	Call	4.20	0.21375	Put	9.00	0.48	Call	10.00	0.34125
Put	3.80	0.3525	Call	4.30	0.18875	Put	9.20	0.58375	Call	10.20	0.29625
Put	3.90	0.4125	Call	4.40	0.1675	Put	9.40	0.705	Call	10.40	0.25625
Put	4.00	0.47625	Call	4.50	0.14875	Put	9.60	0.83375	Call	10.60	0.22375
Put	4.10	0.54625	Call	4.60	0.1325	Put	9.80	0.97	Call	10.80	0.195
Put	4.20	0.61875	Call	4.70	0.1175	Put	10.00	1.115	Call	11.00	0.17125
Put	4.30	0.69375	Call	4.80	0.105	Put	10.20	1.26875			
Put	4.40	0.77125	Call	4.90	0.09375	Put	10.40	1.42875			
Put	4.50	0.8525	Call	5.00	0.08375	Put	10.60	1.595			
Put	4.60	0.93625				Put	10.80	1.765			
Put	4.70	1.02				Put	11.00	1.94125			
Put	4.80	1.1075									
Put	5.00	1.285									