

Name: _____

Homework 4
AAE 322
Due March 31, 2009

- 1) The time value of a put option is influenced by:
 - a) Volatility of the underlying futures market.
 - b) Days to expiration.
 - c) Interest rates.
 - d) All of the above.**

- 2) A call option with a \$3 strike price currently has a premium of 35 cents. The current futures price for the contract related to the option is \$3.10.
 - a) This option has no intrinsic value.
 - b) This option has no time value.
 - c) This option has a time value of 25 cents.**
 - d) This option would never trade for 35 cents.

- 3) A put option will get you a higher sales price than a hedge if futures prices fall before the cash sale.
 - a) True
 - b) False**

- 4) An out-of-the-money option:
 - a) Will never allow you to earn a profit.
 - b) Has no time value.
 - c) Is not very often traded.
 - d) Has no intrinsic value.**

- 5) Sellers of options face more financial risk than buyers of options.
 - a) True**
 - b) False

You operate a soybean crushing plant. You buy soybeans and produce soybean meal and soybean oil. On March 10 you have the following information:

- 1) The cash price for soybeans today is \$4.43 per bushel.
- 2) The May soybean futures contract is \$4.65 per bushel. The contract is 5000 bushels.
- 3) The August soybean futures contract is \$4.70 per bushel.
- 4) Local basis for soybeans in April is usually -\$0.25.
- 5) Local soybean basis in July is usually -\$0.25.
- 6) You can store up to 4 months of your soybean needs. It costs 3 cents a month for you store soybeans.
- 7) The information for August soybean options is.

Calls		Puts	
<u>strike</u>	<u>premium</u>	<u>strike</u>	<u>premium</u>
\$4.40	41 cents	\$4.40	12 cents
\$4.60	31 cents	\$4.60	21 cents
\$4.80	23 cents	\$4.80	33 cents
\$5.00	17 cents	\$5.00	47 cents

Questions:

1) You decide you want some price protection for the soybeans you expect to buy in July, but also think there could be price improvement. What type option would you buy. Calculate the expected maximum purchase price for each of the strike prices of that option. Assume the broker's commission is 1 cent per bushel.

Buy a call Max purchase price is Strike + basis + premium + commission

2) Assume you paid 0.30 for an August soybean option with a strike price of \$4.70 on April 1. When you buy cash soybeans in July, the basis is -\$0.25. Calculate the actual price you would pay under the following scenarios (assume the broker's commission is 1 cent per bushel).

a) August futures price in July is \$4.75

$$\mathbf{\$4.70 + (-0.25) + 0.30 + 0.01 = \$4.76}$$

b) August futures price in July is \$4.50

$$\mathbf{\$4.50 + (-0.25) + 0.30 + 0.01 = \$4.56}$$

c) August futures price in July is \$4.00

$$\mathbf{\$4.00 + (-0.25) + 0.30 + 0.01 = \$4.06}$$

- 3) If you buy a \$4.60 strike price option today, and the futures price ends up being \$5.20 and basis turns out to be 8 cents stronger than you expected in July, what will be your net purchase price?

$$\text{\$4.60} - \text{0.25 (expected basis)} + \text{0.08 (change in basis)} + \text{0.31 (premium)} + \text{0.01 (commission)} \\ = \text{\$4.75}$$

- 4) I am a speculator. I do not expect much change in the future market for soybeans between now and July. Tell me how to take advantage of the change, and diagram what my risk/reward profile would look like.

Use a short straddle Sell a put and sell a call. The picture will be a function of which strike prices you pick

- 5) How much do you expect the cash price for soybeans to change between April and July?

April cash = \$4.43

Expect July cash \$4.70 (August futures price in April) – 0.25 (excepted basis) = \$4.45

So expect cash prices to increase by \$0.02

- 6) Using the information given, give an example of and illustrate the returns to a bear put spread.

This is a picture of a bear put spread in corn. Your should look similar but the premiums and strike prices should come from the information given.

Bear Put Spread

