Name:_____

Ag and Applied Econ 322
Mid-Term Examination

April 13, 2006

Part I. Multiple Choice Questions: (Circle the letter associated with the best answer. Each question is worth 3 points.)

1) I do not think futures prices will change over the next few weeks. One way to profit from this is to:
   a) Use a long straddle.
   b) Buy a call option.
   c) Use a bull-call option spread.
   d) Use a short straddle.

2) For a bull-put spread I would sell a put option with a low strike price, and buy a put option with a higher strike price.
   a) True
   b) False

3) I sell you a put option, and two days later the price for the associated futures contract goes up. This means:
   a) You have to make a margin call.
   b) I have to make a margin call.
   c) Neither of us makes a margin call.
   d) The option's time value increases.

4) A synthetic long position requires selling a call option and buying a put option.
   a) True
   b) False

5) The current futures price for February live cattle is $73 per hundred pounds. A call option for February with a $70 strike price is $8 per hundred pounds. This option:
   a) Has $3 time value.
   b) Would never trade for $8.
   c) Is out-of-the-money.
   d) **Has $3 intrinsic value**.

6) Short straddles:
   a) Require two margins.
   b) Do not require margins.
   c) Have unlimited profits and limited risk.
   d) None of the above.

7) I sell corn in the cash market, and want to protect my price. A put option will give me a better net price than a hedge if:

a) Prices rise by more than the option premium.
b) Prices fall by more than the option premium.
c) An option will never get me a better price than a hedge.
d) The basis ends up weaker than expected.

8) If I buy a put option with a $2.00 strike price, and sell a put option with $1.50 strike price, I have formed a:

a) Bull-put spread.

b) Bear-put spread.
c) Short straddle.
d) Synthetic futures position.

9) The Relative Strength Index is an example of fundamental analysis.

a) True
b) False

10) If I buy a call option to protect my cash market purchase price, and the price I actually pay is less than I expected when I bought the option, then:

a) Basis must have ended up weaker than I expected.
b) Basis must have ended up stronger than I expected.
c) Prices went up.
d) I paid too much for the option.

11) The current price of soybeans on the November futures contract is $6.00 per bushel, and my local basis is usually -$.30 in October. I am a farmer, and buy a put option with a $5.80 per bushel strike price to protect my October cash price for 30 cents per bushel, and pay my broker 1 cent per bushel for the trade. If I am right about the basis, and in October November futures prices are $6.85 per bushel, my net cash price will be:

a) $6.54 per bushel.
b) $6.84 per bushel.
c) $6.24 per bushel.
d) $5.69 per bushel

12) We both think prices will go higher. I buy a futures contract and you buy a call option. If we are right, we will both earn the same level of profit.

a) True
b) False

13) The current July futures price of wheat is $3.00 per bushel. You and I are both going to sell wheat in June. I buy a put option with a $3.00 strike price, and you buy a put option with a $2.90 strike price. This means my expected minimum selling price is 10 cents higher than yours (we have the same basis expectation).

a) True
b) False

14) If I enter into a bull-call spread I have:
a) Unlimited risk and unlimited profit.
b) Limited risk and unlimited profit
c) Unlimited risk and limited profit.
d) Limited risk and limited profit.

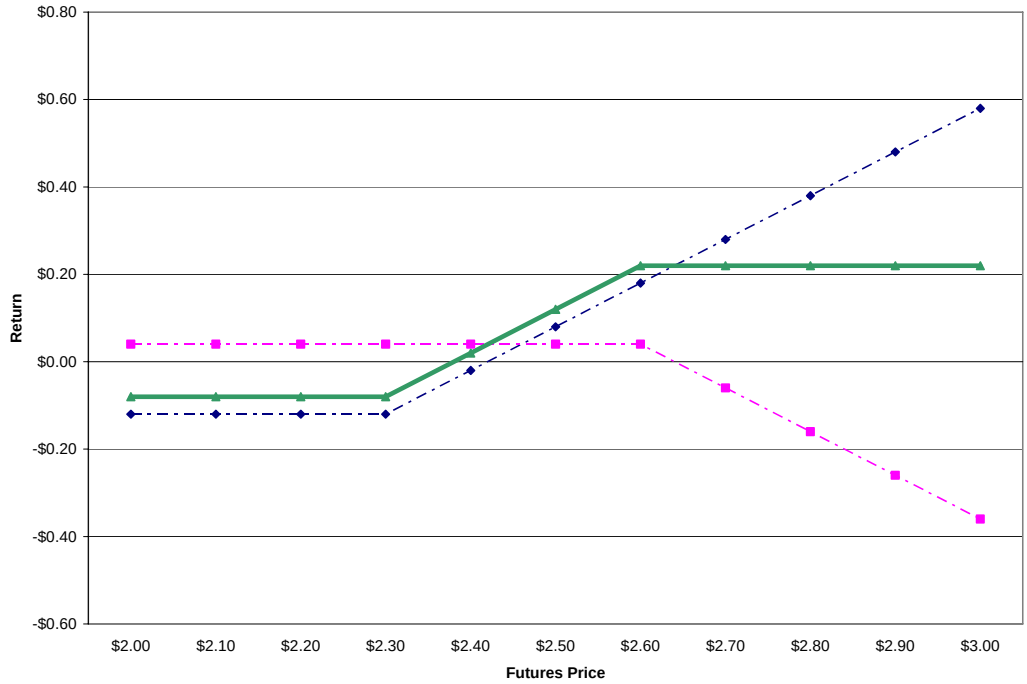
15) If I have a put option on a May futures contract, and a put option on a July contract, the time value in the July contract option will deteriorate faster then the time value in the May option.
a) True
b) False

16) In the end, options will never give a potential hedger the best price the market has to offer.
a) True
b) False

17) A horizontal spread is an attempt to capture:
a) Intrinsic value.
b) The change in value between two different commodities.
c) A change in the futures price spread.
c) Loss in time value.

18) Assume an option with no intrinsic value. Last week its time value was $1. This week its time value is $2. This means:
a) This cannot happen. Time value always goes down as you approach expiration.
b) The option has a long time before expiration.
c) Futures prices have become more volatile.
d) Volume has increased in the futures market.

19) If this picture represents my risk/reward profile, then I must have:



a) Entered a synthetic long position.
b) Entered a bull-call spread
c) Entered into a bear-put spread.
d) Entered a long straddle.

20) Badger hockey rules!

a) True.

Part II. Use the information below to answer the following questions. Each question is worth 5 points. Write out any formulas you might use to insure partial credit should you make a math error.

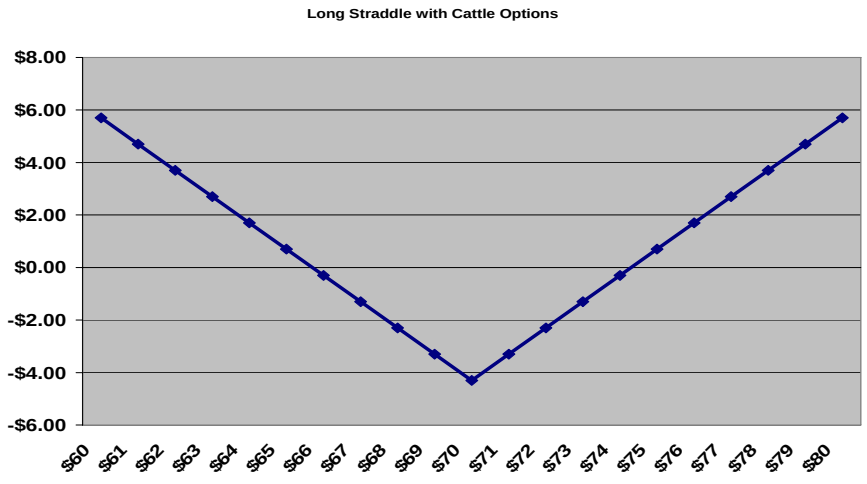
The following options for corn are trading for December delivery. The current December futures price is $2.30 per bushel

Calls		Puts	
strike	premium	strike	premium
$2.10	51 cents	$2.10	9 cents
$2.20	35 cents	$2.20	17 cents
$2.30	23 cents	$2.30	23 cents
$2.40	17 cents	$2.40	34 cents
$2.50	8 cents	$2.50	50 cents

1) There is currently a weather forecast that suggests significant flooding in Central Illinois. If this happens, I expect corn prices to rise dramatically. However, if flooding does not occur, I expect a significant decline in corn futures prices. What option strategy would be best for this situation? Diagram the risk/reward profile (use the back if necessary).

Long straddle

This is one from class with cattle options. We buy a call and buy a put (in the case below they both have the same strike price). Max loss is sum of both premiums (in this case below the premiums were $2.15), breakeven is strike prices + or – both premiums.



2) Using the premiums above, design a bear option spread, and identify both the maximum loss and potential profit.
You could have done this with puts or calls. If you used puts, you buy a high strike price put and sell a low strike price put. With calls you do the opposite. Max loss and profit depends on which strike prices you chose.

3) Corn basis in my area in November is usually -$0.35. My broker charges 1 cent per bushel for any transaction. I need to buy corn next November. If I use an option with a strike price equal to the current futures price to protect against higher prices, what is my maximum expected purchase price?

$2.30 (strike price) – $0.35 (expected basis) + $0.23 (option premium) + $0.01 (commission) = $2.19

4) If I buy a $2.40 strike price option to protect my purchase price for November, what would have to happen for me to be better off with the option than I would have been with a futures market hedge (be as specific as possible)?

Price would need to go down more than 17 cents (or go below $2.13)

5) Explain a horizontal option spread. Why would we use one?

Sell an option close to expiration and buy an option for the same commodity with a longer life. Make sure both strike prices have the same relationship to the corresponding futures price. I would use one to capture decaying time value when I thought futures prides were going to remain stable.

Part III. (Each question is worth 5 points).

1) Give an example of and describe the use of a leading indicator model.

Look at the notes posted on the web site for fundamental analysis.

2) Define the individual components that make up an option premium.

Intrinsic value: the amount of profit that could be earned immediately in the futures market if the option were already owned. Never less than zero.

Time value: The value of an option, in addition to the intrinsic value, that accounts for the time over which the option can be used. Usually goes down over time, but does increase as futures market volatility increases.

3) LAST QUESTION – Identify two technical indicators on the graph below, and explain their interpretations:

GAPS

Key Reversal

Could have drawn trend lines. For additional possibilities, look at technical analysis slides on the web site.