

Name: _____

Ag and Applied Econ 322
Mid-Term Examination #1
(February 28, 2006)

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

- 1) The current cash price for live cattle is \$95.10 per hundred pounds. The April futures contract price (the nearby contract) is \$100.15 per hundred pounds. This means:
 - a) **Traders expect cash prices to rise.**
 - b) Basis is weaker than normal.
 - c) Traders expect futures prices to fall.
 - d) Basis should get weaker between now and April.

- 2) In a market with relative excess demand (more is consumed than is produced), the basis will generally be:
 - a) Negative.
 - b) Weaker the later it is in the year.
 - c) **Positive.**
 - d) Basis only exists in areas where production takes place.

- 3) Prices fall and the basis gets weaker. This means:
 - a) Futures prices fall faster than cash prices.
 - b) Futures prices and cash prices fall the same amount.
 - c) **Cash prices fall faster than futures prices.**
 - d) Basis cannot get weaker when prices are falling.

- 4) A calendar spread for hogs is less risky than a calendar spread for corn.
 - a) True
 - b) **False**

- 5) Initial margins would be higher if:
 - a) **We did not mark to market daily.**
 - b) Poor people were allowed to speculate in the market.
 - c) More people were trading.
 - d) Prices were higher.

- 6) Basis for feeder cattle is more predictable than basis for wheat.
 - a) True
 - b) **False**

- 7) I run an ethanol plant. I make ethanol out of corn. I want to guarantee my profits for a later month. To do this I would:
- a) Sell an ethanol futures contract.
 - b) Sell a corn futures contract.
 - c) Sell a corn futures contract and buy an ethanol futures contract.
 - d) Sell an ethanol futures contract and buy a corn futures contract.**
- 8) Cash forward contracts usually exist when there is not a futures market.
- a) True
 - b) False**
- 9) An example of a compliment spread is:
- a) Buying a hog futures contract and selling a cattle futures contract.
 - b) Buying a corn futures contract and selling a hog futures contract.
 - c) Buying a March soybean contract and selling a July soybean contract.
 - d) None of the above.**
- 10) If I buy a soybean futures contract and sell a soybean meal futures contract, I am betting that the price of soybeans will increase.
- a) True
 - b) False**
- 11) The derived demand for an input to some production process is usually more price elastic than the demand for the final product.
- a) True.
 - b) False.**
- 12) My daughter wrote this question. She won't tell me the answer, so she also will be grading it:

Yo. Consider the following facts:

- 1) Tomorrow is my 16th birthday.
- 2) **MY DAD IS AN IDIOT.**
- 3) My mom only hangs out with him because it makes her life look better.

Based on these facts, we can assume:

- a) I will not be getting the jeep I asked for, even though I deserve it.**
- b) The idiot thinks driving my brother's hand-me-down is acceptable.**
- c) He hates my boyfriend (this might be true but it is not the answer I am looking for).
- d) Both a and b.**

- 13) If the market exceeds full carry, then it must be:
a) Paying a convenience yield.
b) Worried about a scarcity of supply.
c) Paying a large risk premium.
d) It will never exceed full carry.
- 14) Selling a corn futures contract is generally less risky than a calendar spread trade.
a) True
b) False
- 15) If I lose money in the futures market, I have to deposit money in my margin account to get its value back up to the maintenance margin.
a) True
b) False
- 16) The market is currently inverted, and I think it should offer a positive carry. If I am right, I could earn a profit by:
a) Selling a contract with a nearby expiration and buying a contract with a later expiration.
b) Buying a contract with a nearby expiration and selling a contract with a later expiration.
c) Buying the under priced contract.
d) There is no way to profit in an inverted market.
- 17) A basis contract:
a) Has price risk.
b) Has basis risk.
c) Eliminates all risk.
d) Does not exist (or at least we did not talk about it).
- 18) If I hedge today by selling a futures contract and prices go higher, the hedge did not work.
a) True.
b) False.
- 19) My son sent this question down from Minneapolis. I had to re-word it slightly:

Hey – you guys should come to school up here. They will let anybody in and nobody has to take exams because they are afraid it will lower the average GPA. Anyway, here is my question:

Gopher basketball sucks:
a) True.
b) True.
- 20) Describe a full carry market. **The price on a deferred futures contract completely**

covers the costs of storage when compared to the price for a nearby contract.

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.

It is currently March 1. You manage a bio-diesel plant. You buy soybean oil that you use to make bio-diesel. You use 2.5 million pounds per month. All pricing for soybean oil is in cents per pound.

- 1) The current cash price is \$0.22 per pound.
- 2) July futures for soybean oil are currently trading for \$0.27 per pound.
- 3) June basis the last three years was -\$0.02, -\$0.018, -\$0.025.
- 4) October futures for soybean oil are \$0.28 per pound.
- 5) September basis the last three years was \$0.01, \$-0.01, \$0.01.
- 6) It will cost you \$0.0025 per month to store soybean oil.
- 7) Your broker will charge \$50 per contract to trade futures, and the contract size is 60,000 pounds.

Questions:

- 1) Should you buy soybean oil today for the bio-diesel you are going to produce in June? How much will you make or lose if you buy today for your June soybean oil needs?

Current Price	\$0.22	June Expected Price: \$0.27 (July futures)
Storage (4 mos)	<u>\$0.01</u>	<u>-(\$0.021) (expected June basis)</u>
	\$0.23	\$0.249

So buy now and store.

- 2) I own a soybean crush plant, and I sell you soybean oil. I am currently offering you a forward cash contract for 2 million pounds of soybean oil for September delivery for \$0.23 per pound. Is that a fair price? Why or why not (show me how you decide that)?

Expected Cash Price: \$0.28 (Oct. futures)
<u>+\$0.0033 (expected Sept. basis)</u>
\$0.2833

So the \$-0.23 price I am offering you is a good deal for you.

- 3) July Soybean futures are currently selling for \$6.00 per bushel. If I want to lock in the June profit at my crush plant, what would I need to do?

Buy July soybean contracts and sell July soybean oil contracts

- 4) Is the basis in September weaker or stronger than the basis in June?

Stronger

- 5) October soybean oil futures are usually 5 cents per pound lower than July futures in June. If a speculator expects that to happen again this year, what would she do to profit from it? How much money would she make?

Sell October and buy July soybean oil futures contracts. Expect to make \$0.06 per pound, minus 2 cents broker's commission (1 cent per contract, or 0.0016 cents per pound), thus net \$0.058 cents per pound

Part III. Short Answer. (5 points each)

- 1) Explain the relationship between the convenience yield and the risk premium.

Convenience yield is largest component in the marginal cost of storage at very low inventory levels, and the risk premium determines the marginal cost of storage once the market exceeds full carry (high levels of inventory).

- 2) Where on the supply of storage curve is a calendar spread most risky?

When the market is inverted, which is at very low levels of inventory.

- 3) If you put on a calendar spread for soybean oil, and I put on a calendar spread for soybeans, which one of us likely has the more risky trade? Why?

You do because of continuous production.