Answer Key to Homework 2

1a) Cover $78/cwt variable cost and higher prices if they occur:

- Buy put or LRP that has floor above $78.
- $P = 80.00
- $R = -2.65
- $B = +1.50
- $c = -0.15

Higher strike prices will work. LRP with $82.68 coverage will work.

\[ 78.70 \]

1b) Cover $81/cwt total cost & higher price if it occurs.

- Buy $86 put
- $P = 86.00
- $R = -5.52
- $B = +1.50
- $c = -0.15

\[ 81.83 \]

1c) Cover total cost + $25/head profit, don't need higher.

Simple way is to sell futures

- $F = 84.13
- $B = 1.50
- $c = -0.15

\[ 85.48 \]

For b & c some used a fence strategy of buying a put and selling a call. This is fine as long as it covers the objective and you did the math correctly.
2a) I wanted net prices calculated for 2a & 2b.

2a) at lower price ($78) you get the floor calculated in #1, but adjusted for basis change (ΔBasis = -1.50)
   1a) 78.70 - 1.50 = 77.20  Buy 80 put
   1b) 81.83 - 1.50 = 80.33  Buy 81 put
   1c) 85.48 - 1.50 = 83.98  Sell Futures

2b at higher prices you get the cash price less 80 + 80 put
   a) 88 - 2.65 - .15 = 85.20
   b) 88 - 5.52 - .15 = 82.33
   1c) Futures, you get the expected hedge price adjusted for ΔBasis in this case the basis is -50 less than expected.
      $85.48 - .50 = $84.98
#3) Compare buying an 82 put to LRP at 82.65

Buy 82 put

SP = 82.00
- P = -3.48
+ B = +1.50
- C = -1.15

Floor price = \( \frac{78.87}{78.87} \)

Buy 82.65 LRP

coverage = 82.65
- prem \times 0.87 = -4.48 = (5.15 \times 0.87)
+ basis = +1.50 given inquire

Very similar

Advantage of put in this example is the lower SP.
If prices stay above 82 and you don't need coverage you need less of the put.

Advantage of LRP is flexible size of contract and typically a smaller basis.

#4) Protect from rising corn prices above 3.75 and

Buy Corn futures at 3.87 - .33 + .01 = 3.55/BU

Buy Call at any strike price below 3.85

Buy = 3.85
+ B = +1.216
- B = -3.3
+ C = +.01

3.75 ceiling

#5) If you assume the $81 total cost is based on 3.75 corn
(thecorn from above), then hedging cattle at 85.48 and corn at
3.55 provides a profit of $67.20/hec. If you used hedging
from HWR1 then it is a loss.

The only thing factored into a profit and loss is if you didn't
identify basis risk.
### Extra Credit: Compare Fense to Put Spread

**Fense**
- Buy 80 put @ 2.65
- Sell 88 call @ 2.65
- Net prem = 0

**Floor**
- $F = 80.00$
- $NP = 0.00$
- $+$ = 1.65
- $2C = -0.30$
- $F = 81.20$

**Ceiling**
- $F = 88.00$
- $87.20$

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**Put Spread**

- Buy 80 put @ 5.53
- Sell 88 put @ 2.65
- Net Prem = -2.88

**Floor between 80-86**
- $SP = 86.00$
- $NP = 2.88$
- $+$ = 1.50
- $2C = -0.30$
- $F = 84.32$

**Above 86**
- $NP = 2.88$
- $Cash = NP - 2C$
- $Cash = 2.88 - 0.30$
- $Cash = 2.58$

**Below 80**
- $Cash + (Spread - $NP) / -2C$
- $Cash + 3.12 - 0.30$
- $Cash + 2.88$

**Spread**
- Future Fence
  - 73
  - 81.20
  - Floor

<table>
<thead>
<tr>
<th>Future</th>
<th>Fence</th>
<th>Spread</th>
</tr>
</thead>
<tbody>
<tr>
<td>73</td>
<td>81.20</td>
<td>74.50 + 2.58</td>
</tr>
<tr>
<td>78</td>
<td>81.20</td>
<td>79.50 + 2.88</td>
</tr>
<tr>
<td>83</td>
<td>84.20</td>
<td>84.50 + 0.30</td>
</tr>
<tr>
<td>88</td>
<td>89.20</td>
<td>89.50 + 2.88</td>
</tr>
</tbody>
</table>

**Spread is higher in low to middle 78-83**
- Fence is higher at middle to high prices 88

**Spread is higher at low prices and Fence is higher at high prices 73**

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**Future Fence**
- 73
- 81.20
- Floor

**Spread**
- Cash + 3.12 - 0.30 = 74.50 + 2.58
- = 77.32

**Spread**
- Cash + 3.12 - 0.30 = 79.50 + 2.88
- = 82.38

**Spread**
- Cash + NP - 2C
- = 86.38

Fence is higher at low prices and Spread is higher in low to middle 78-83
Fence is higher at middle to high prices 88