Below are several questions that will ask you to demonstrate your understanding of how crop insurance works. You will likely have to use the class overheads and/or the materials posted on the class web page to answer some of them.

A. Yield Insurance
Suppose a farm has 250 acres of corn in one insured basic unit with an actual production history (APH) average yield of 170 bu/ac.

1. If the farmer buys 65% Yield Protection (YP) crop insurance, what would be the per acre yield guarantee? What would be the yield guarantee for the 250 acre unit?

   Per Acre Yield Guarantee: 65% x 170 bu/ac = 110.5 bu/ac
   Unit Yield Guarantee: 110.5 bu/ac x 250 ac = 27,625 bu

2. If the farmer actually harvested 26,250 bushels from the unit (an average of 105 bu/ac), what would be the YP indemnity, assuming a 100% price election of $3.86/bu?

   26,250 bu < 27,625 unit yield guarantee, triggers indemnity
   Yield Loss = 27,625 – 26,250 = 1,375 bu
   Indemnity = 1,375 bu x $3.86 = $5,307.50

3. How would the indemnity for question 2 change if the farmer actually sold the corn for $4.00/bu?
   Not at all. Indemnities are determined using the price election of $3.86, not farm’s actual price received.

4. If instead the farmer actually harvested 28,000 bushels from the unit (an average of 112 bu/ac), what would be the YP indemnity, assuming a 100% price election of $3.86/bu?

   28,000 bu > 27,625 unit yield guarantee, no indemnity is triggered, so Indemnity = $0

Suppose the farmer instead bought a corn Area Yield Protection (AYP) policy in a county with an average yield of 155 bu/ac. The farmer buys a AYP policy with a 90% coverage level, so the county yield guarantee is 90% x 155 bu/ac = 139.5 bu/ac. The farmer enrolls all 250 corn acres.

5. If the county average yield is 135 bu/ac and the farmer chose a $3.86/bu price election, what would be the AYP indemnity?

   135 bu < 139.5 yield guarantee, triggers indemnity
   Yield Loss = 139.5 – 135 = 4.5 bu/ac
   Indemnity = 4.5 bu/ac x $3.86 x 250 ac = $4,342.50

6. How would the AYP indemnity change if the farmer’s actual yield was 110 bu/ac? How would the AYP indemnity change if the farmer actually sold the corn for $4.00/bu?
   Not at all. Indemnities are determined using county yield, not farm’s actual yield, and the $3.86 price election, not the farm’s actual price received.
B. Revenue Insurance
Suppose a farm has 250 acres of corn in one insured basic unit with an actual production history (APH) average yield of 170 bu/ac and the Revenue Protection (RP) base price is $3.86/bu.

1. If the farm buys 80% Revenue Protection crop insurance, what would be the initial per acre revenue guarantee? What would be the initial revenue guarantee for the 250 acre unit?

   \[
   \text{Per Acre Revenue Guarantee: } 80\% \times 170 \text{ bu/ac} \times \$3.86/\text{bu} = \$524.96/\text{ac} \\
   \text{Unit Revenue Guarantee: } 524.96/\text{ac} \times 250 \text{ ac} = \$131,240
   \]

2. If the officially announced harvest price is $4.12/bu, what is the final per acre revenue guarantee and unit guarantee? What if the officially announced harvest price is $3.71/bu?

   Maximum of Base Price ($3.86) and Harvest Price ($4.12) is $4.12, so revenue guarantee is updated: \[80\% \times 170 \text{ bu/ac} \times 4.12/\text{bu} = \$560.32/\text{ac} \times 250 \text{ ac} = \$140,080 \text{ for the unit.} \]

   Maximum of Base Price ($3.86) and Harvest Price ($3.71) is $3.86, so no guarantee change.

Suppose the farm actually harvests 28,000 bushels from the unit (an average of 112 bu/ac).

3. If the officially announced harvest price is $3.71/bu, what would be the RP indemnity?

   Maximum of Base Price ($3.86) and Harvest Price ($3.71) is $3.86, so no guarantee change.

   Actual Revenue = 28,000 bu \times \$3.71/bu = \$103,880 \lt \$131,240 \text{ guarantee, so triggers indemnity = } 131,240 – 103,880 = \$27,360

4. Suppose the farm has a futures contract and actually sells the corn for $4.15/bu in March, how does the RP indemnity change?

   Not at all. Actual revenue for calculating indemnities uses the officially announced harvest price.

Suppose the farm instead bought a corn Area Revenue Protection (ARP) policy in a county with an approved average yield of 155 bu/ac and the farmer chose a 90% coverage level. If the base price is $3.86/bu, then the initial county revenue guarantee is 90% \times 155 \text{ bu/ac} \times \$3.86/\text{bu} = \$538.47/\text{ac}. The farmer enrolls all 250 corn acres.

5. If the county average yield is 140 bu/ac and the officially announced ARP harvest price is $3.71/bu, what would be the ARP indemnity?

   Maximum of Base Price ($3.86) and Harvest Price ($3.71) is $3.86, so no guarantee change.

   Actual Revenue = 140 \text{ bu/ac} \times \$3.71/bu = \$519.40/\text{ac} \lt \$538.47 \text{ guarantee, so triggers indemnity = } 538.47 – 519.40 = \$19.07/\text{ac} \times 250 \text{ acres} = \$4,767.50

6. How would the ARP indemnity change if the farm’s actual yield was 180 bu/ac and it sold its grain for $4.10/bu? How would the ARP indemnity change if the farm’s actual yield was 115 bu/ac and it sold its grain for $3.50/bu?

   Not at all. Actual revenue for calculating indemnities uses the officially announced harvest price and county yields, not the farm’s yield or actual price received.