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Cooperative Extension Service

User's Guide for Interactive Crop Insurance Policy Calculator in Excel

For questions and comments related to the Interactive Crop Insurance Policy Calculator contact Archie Flanders at 870-526-2199 ext. 108 or aflanders@uaex.edu.

General Information

The interactive calculator represents multi-peril crop insurance policies for coverage of yield and revenue. Users may enter historical yields and expected prices to investigate outcomes for potential yields and harvest prices. Selecting percentages for alternative coverage levels indicates the yield and revenue protection. The program is intended to demonstrate the mechanics of each policy for evaluating crop insurance in a risk management strategy.

Crop Insurance Calculator

The Excel program has six worksheets. The worksheets are yield protection (YP) and revenue (RP) based on farm or area coverage. Revenue protection has an optional selection for harvest price exclusion (HPE). See "Fundamentals of Crop Insurance" at http://www.uaex.edu/farm-ranch/economics-marketing/farm-planning/12_CropInsurance_RiskManagement.pdf for more information. White cells in column B of each worksheet are available for users to change for representing alternative situations. Calculations with components of indemnities are in the colored sections of each worksheet. In each of the six worksheets, cell B5 is the crop insurance projected price, cell B6 is the percentage for selected coverage level, and cell B7 is the historical yield for either the farm or the county. Although the default examples are for corn, the program is flexible for use with all crops. Yields and prices should be entered with corresponding units of production.

Yield Protection, Farm Coverage (YP_Farm)

Cell B8 is an example with the farm having a corn yield that is 65 bu. less than actual production history in cell B7. The farm selects 75% coverage as a policy option in cell B6. The yield loss of 18.75 bu. less than the yield guarantee is multiplied by the crop insurance projected price for a total indemnity of $112.50 per acre. Change yield to 140.0 in cell B8. The actual yield is not less than the yield guarantee in cell B12, and there is no indemnity payment in cell B14.

Revenue Protection, Farm Coverage (RP_Farm)

This example is similar to the previous example with a yield loss equal to 65 bu. less than the actual production history. With revenue protection insurance, the revenue guarantee is revised because the harvest price increased to $7.00/bu. in cell B9. There is no revision in the revenue guarantee for circumstances in which the harvest price decreases to levels that are less than the crop insurance projected price. The minimum revenue guarantee is revised in row 14 due to the increase in price to $7.00.bu. The indemnity payment is $131.25/acre to the farm.

Change actual yield in cell B8 to 150.0 and harvest price in cell B9 to 6.00. There is no indemnity payment in cell B16. Change harvest price in cell B9 to 5.50. The indemnity payment is $7.50 per acre, indicating that revenue protection insurance provides coverage for decreasing crop prices.

Revenue Protection, Farm Coverage with Harvest Price Exclusion (RP_Farm_HPE)

The first example is identical to the first example for RP_Farm. For the first RP_Farm_HPE example, the revenue guarantee is not revised with the price increase to $7.00. Actual revenue of $840.00 is greater than the minimum revenue guarantee of $832.50, and there is no indemnity payment.

Change actual yield in cell B8 to 150.0 and harvest price in cell B9 to 5.50. The indemnity payment is $7.50 per acre which is identical to the previous RP_Farm example with 150.0 yield and $5.50 price. Thus, differences between the alternative policies only occur when harvest price increases above projected price.

Plans for Area Coverage

Area coverage crop insurance has two factors that are not included in farm coverage plans. The payment factor scales the value of protection up or down according to the selection of the insured farm. Alternative selections range from 80% to 120% of the applicable yield multiplied by the applicable price. The loss limit factor is established by USDA regulations and is applied to either yield or revenue in determining indemnity payments based on county losses.

Yield Protection, Area Coverage (YP_Area)

The average county yield is 180.0 bu. in cell B7, and the crop insurance projected price is $4.50 in cell B5. The farm selects a coverage level of 90% in cell B6 and a payment factor of 120% in cell B8. Actual yield for the county is 150.0 bu. in cell B9. Applying the loss limit factor according to USDA regulations in row 16 through row 19 results in an indemnity payment to the farm of $90.00/acre to the farm due the yield loss in the county.

Change the coverage level in cell B6 to 75%. Actual yield of 150.0 bu. is greater than the county yield trigger of 135.0 bu. (180.0 bu. x 75%). There is no indemnity payment.

Revenue Protection, Area Coverage (RP_Area)

The average county yield is 180.0 bu. in cell B7, and the crop insurance projected price is $4.50 in cell B5. The farm selects a coverage level of 90% in cell B6 and a payment factor of 120% in cell B8. Actual yield for the county is 150.0 bu. in cell B9. Applying the loss limit factor according to USDA regulations in row 23 through row 26 results in an indemnity payment to the farm of $110.00/acre to the farm due the revenue loss in the county. This example is identical to the previous YP_Area example, except that revenue insurance accounts for the increase in price to $5.50/bu., and the county revenue trigger is revised to account for the increased price.

Revenue Protection, Area Coverage with Harvest Price Exclusion (RP_Area_HPE)

The average county yield is 180.0 bu. in cell B7, and the crop insurance projected price is $4.50 in cell B5. The farm selects a coverage level of 90% in cell B6 and a payment factor of 120% in cell B8. Actual yield for the county is 150.0 bu. in cell B9. This example is identical to the previous RP_Area example, except that with the harvest price exclusion, the county revenue trigger is not revised to account for the increased price to $5.50 bu. Actual county revenue is greater than the county revenue trigger, and there is no indemnity payment to the farm.

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