

How to Explain and Use an Insurance Contract

Insurance contracts, in this case, are agreements between farmers and an insurance company. By signing the contract, the farmer agrees to pay a certain amount of money to enroll in the index insurance program. In return, after the season (or contract window) is finished, if the rainfall is less than the amount agreed upon, the insurance company agrees to compensate the farmer. Participation in an insurance contract is voluntary and, in this project, is only for one year; which is to say that the farmer must agree to the contract every year.

Below is a description of some important contract components:

Determining Payouts--Triggers and Exits: During the insured dates (or contract window), we use satellite measurements or rain gauges to count the rainfall. Each contract window has what is called a “trigger”; if the total rainfall amount is more than the trigger, there is no payment. Any rainfall total below the trigger will result in a payout. Payments will increase for each millimeter (mm) of rainfall below the trigger, until a maximum payment is reached. The maximum payout point is called “exit”. In other words, if the total rainfall for the contract dates is above the trigger, you will receive no payment. If the rainfall is between the trigger and exit, you will receive a partial payment. If the rainfall is below the exit, you will receive a full payment.

Cap: Please note that the rainfall total is actually an adjusted rainfall total. Every ten-day period (dekad) the rainfall amount is totaled, and a ‘cap’ (e.g. 25 mm) is applied. This cap represents the maximum amount of rainfall that is counted for each ten-day period. These adjusted ten-day rainfall totals are then added together to calculate the adjusted rainfall total for the full contract window. A cap is applied so that we can better capture dry spells. Without this feature, it would be possible to have a single big storm that would drop enough rainfall, in a short amount of time, to pass the contract trigger (most of the water would be washed away and not be used by the plants); however, you might still have very dry crops on all other days. As a result of this adjustment, the contract triggers and exits are also not truly represented in units of millimeters. Instead, you may want to think of the trigger and exit as “capped millimeters”.

Contract Phases: In some locations, farmers have identified multiple critical periods in which their crops are vulnerable to drought. It is possible to develop an insurance contract that targets different phases of the growing season. In a multiple phase contract, each phase can have a unique trigger, exit and payout frequency. However, not all crops and location require a multiple phase insurance contract; a one-phase contract (only looking at one part of the season) is also possible.

Please Remember That: This Weather Index Insurance will not pay out in every year, and it will not cover all of your risks. There are many things that this index

insurance is NOT designed to help with, like floods or termites. You will not receive a payment in most years, and you will not receive a payment in all 'bad' years. This insurance cannot be used to address every risk; rather it is one part of a larger risk management package.

How Indices are Created (Exercise)

Year	Late Window Rainfall Total (mm)*	Year	Late Window Rainfall Total (mm)*
1995	54.85	2003	79.31
1996	74.42	1998	75.07
1997	26.57	1996	74.42
1998	75.07	2005	66.26
1999	60.54	2001	62.60
2000	54.76	1999	60.54
2001	62.60	2006	58.64
2002	51.81	2008	57.49
2003	79.31	1995	54.85
2004	31.84	2000	54.76
2005	66.26		
2006	58.64		
2007	53.36		
2008	57.49		
2009	49.68		

**Totals represent total rainfall during contract window, after a predetermined cap is applied for every ten-day period (dekad).*

The above chart is partially filled in. The first two columns show the amount of rainfall received during the end of the rainy season for 15 historic years. Using this information, we will explore one way to set triggers and exits for an initial draft index that targets early cessation. This example is based on the HARITA project.

The method used below is called historical burn analysis, as it relies on the past to provide a key to what might occur in the future. Using this approach, it is assumed that the coming year will look like one of the years that has already occurred. Therefore, the historical years are used to determine an appropriate trigger and exit for next season index insurance contract. While this is a simplistic approach, it provides a starting point from which the contracts can then be tweaked.

Please use the following instructions to fill in the two remaining columns of the chart:

1. First, order the above years and corresponding rainfall totals by the amount of rainfall received. Start with the largest rainfall total at the top of the chart and end with the least amount of rainfall at the bottom. The first ten rows have already been filled in to expedite this task. Please fill in the remaining blanks.

2. Draw a line separating the worst rainfall year from the years above. This line represents the Exit, or the point below which a complete payout is provided. In this initial draft index the Exit is designed so that there is a full payout for the worst year in the past fifteen. Here, the Exit would be set to equal the worst year's rainfall total rounded to the nearest whole number.

3. What is the Exit value for this contract? _____

4. Draw a dotted line separating the worst four rainfall years from the years above. This line represents the Trigger for a contract that would payout four times in the past fifteen years. The first three years below this line would have resulted in partial payouts, while the worst year would have resulted in a full payout. For this initial draft index, the Trigger would be approximately halfway between the fourth and fifth worst years.

5. Choose a value to Trigger the contract: _____

How Indices are Created (Answer Key)

Year	Late Window Rainfall Total (mm)*		Year	Late Window Rainfall Total (mm)*
1995	54.85		2003	79.31
1996	74.42		1998	75.07
1997	26.57		1996	74.42
1998	75.07		2005	66.26
1999	60.54		2001	62.6
2000	54.76		1999	60.54
2001	62.6		2006	58.64
2002	51.81		2008	57.49
2003	79.31		1995	54.85
2004	31.84		2000	54.76
2005	66.26	Trigger (worst 4 yrs) - - - - -	2007	53.36
2006	58.64		2002	51.81
2007	53.36		2009	49.68
2008	57.49		2004	31.84
2009	49.68		1997	26.57
		Exit - - - - -		

**Totals represent total rainfall during contract window, after a predetermined cap is applied for every ten-day period (dekad).*

What is the Exit value for this contract? **27 mm**

Choose a value to Trigger the contract: **53 mm** *(There are multiple correct answers)*