To Farm or Not to Farm

How can we use climate data to plan(t) for the future?
Climate Variability vs Climate Change

Climate Variability:
the natural processes that can cause periods of rainfall or drought
ex: the notes in a song

Climate Change:
the man-made (anthropogenic) increase in global mean temperature
ex: the key change that makes all the notes higher or lower
What does climate change mean for farmers?

Certain places experience increased periods of drought while others experience extreme precipitation that causes flooding. Some places will experience both!

farmers will experience bad years more frequently as the climate changes
This helps farmers assess risk, make more money in the good years, and access insurance payouts in the bad years.
Let's Play:

You are going to step into the role of a farmer who is planning for the future!

Your goal is to have the highest yield (amount of sellable crops) at the end of the year.
Drought Years and Ok Years:

For the activity, there will be a hat or some sort of container, and four items. One of the four of the items should be different from the rest or be marked to differentiate it from the other three. For example, three blue markers and one red marker.

The three similar items will represent the ok years while the different item represents a drought year.

There is a 75% chance of having an ok year and a 25% chance of having a drought year.
Round 1

Pick an object from the container → The object will show if it is a drought year or an ok year.
Which “year” did you get?
Round 1 Results

If you pick a drought year, you lose your farm

If you lose your farm, you can come back in round 2
Play round one 3-5 times!
Round 2

- Stick with normal seeds and get normal yield
- Get more expensive high quality seeds and get twice the yield
Would you like to take the chance with high quality seeds or not take the chance?
Round 2

Pick an object from the container

The object will show if it is a drought year or an ok year
Round 2 Results

NORMAL SEEDS:
If you get a drought year, you don't lose your farm

HIGH QUALITY SEEDS:
If you have a drought year, you lose your farm
Play round two 3-5 times!
Round 3

Buy insurance for 25% of your earnings

Don’t buy insurance
Do you want to pay the fee and buy insurance?
Round 3

Pick an object from the container → The object will show if it is a drought year or an ok year.
If you get a drought year, you lose your farm

If you get a drought year, you don’t lose your farm

No Insurance

If you get a drought year, you lose your farm
Play round three 3-5 times!
Round 4

Pick the quality of your seeds: HIGH or LOW

Pick whether you want to buy insurance
What strategic decisions would you like to make this round?
Round 4

Pick an object from the container → The object will show if it is a drought year or an ok year
Round 4 Results: Ok year

- Low quality seeds and insurance
  You get a normal yield

- Low quality seeds and no insurance
  You get a normal yield

- High quality seeds and insurance
  You get twice the yield

- High quality seeds and no insurance
  You get twice the yield
Round 4 Results: Drought

Low quality seeds and insurance
If you get a drought year, you don’t lose your farm

Low quality seeds and no insurance
If you get a drought year, you lose your farm

High quality seeds and insurance
If you get a drought year, you don’t lose your farm

High quality seeds and no insurance
If you get a drought year, you lose your farm
Play round four 3-5 times!
Wrap Up

If you were a farmer, would you want to buy insurance? Why or why not?

Why may some farmers still be hesitant to buy insurance, even after this lesson?
Thank you!

For more information, please contact outreach@iri.columbia.edu