

# Impact of Climate Change on Argentina's Soybean Production

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## Research Question

What is the effect of climate change on soybean production in Argentina?



## Abstract

According to the Intergovernmental Panel on Climate Change, the average temperature over land for the period 2006–2015 was 1.53°C higher than for the period 1850–1900, and 0.66°C larger than the equivalent global mean temperature change. Based on this evidence the author wanted to further study the effect of climate change on soybean production in Argentina. Results suggest that an increase in average temperature and average rainfall will increase soybean production in Argentina, emphasizing the importance of the work of our community partner, Cultovo, in creating effective agricultural insurance products in Argentina.

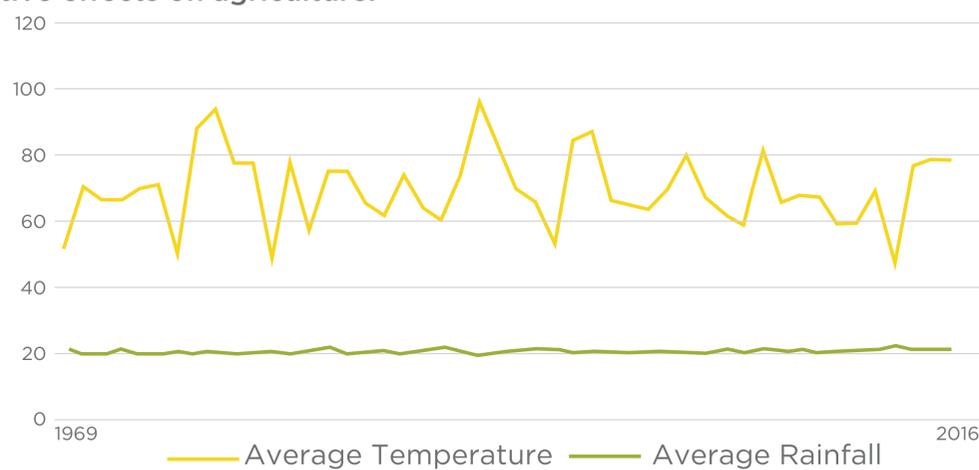


Data source: Intergovernmental Panel on Climate Change



## Methodology

Data collected by Cultovo and the World Bank database were analysed to understand the effects of average temperature, average rainfall and harvested area on soybean production. Time series data were used to estimate a regression model on the dependent variable soybean productions from 1969 - 2016. Testable hypothesis states that average rainfall and average temperature will have positive effects on agriculture.

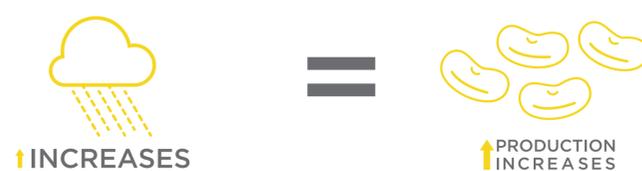


Data source: World Bank Data Base



## Result

- A rise in average temperature and average rainfall increased the production of soybean.
- Similarly, soybean harvested area is positively related to soybean production levels.
- The average rainfall is statistically significant at the 10% level and soybean harvested area is significant at the 5% level.
- 1mm increase in average rainfall increases soybean production by 97867 tonnes per hectare, ceteris paribus.
- This finding is consistent with previous economic research, suggesting that global warming may have a beneficial effect on agricultural output (Mendelsohn, Nordhaus, and Shaw, 1994; Magrin et al., 1997).



## Conclusion

- Average temperature may not have a significant impact on soybean production like average rainfall, but climate change has a considerable positive impact on soybean production levels in Argentina.
- Micro-insurance can be effectively used to manage agricultural production risks in developing countries (Gehrke, 2014).
- Having agricultural microinsurance products available to farmers will be beneficial for them given the effects of climate change.
- Agricultural production risks include but are not limited to floods, droughts, pest attacks, hail, and diseases. Insurance companies can increase access of relevant insurance products to low income households, which can prove beneficial in mitigating the impact of climate change.

