

SESSION THREE: The Evolving Business Environment: Risk Mitigation in Agriculture

Round Table Meeting January 2024

Please remember to follow Chatham House Rule.





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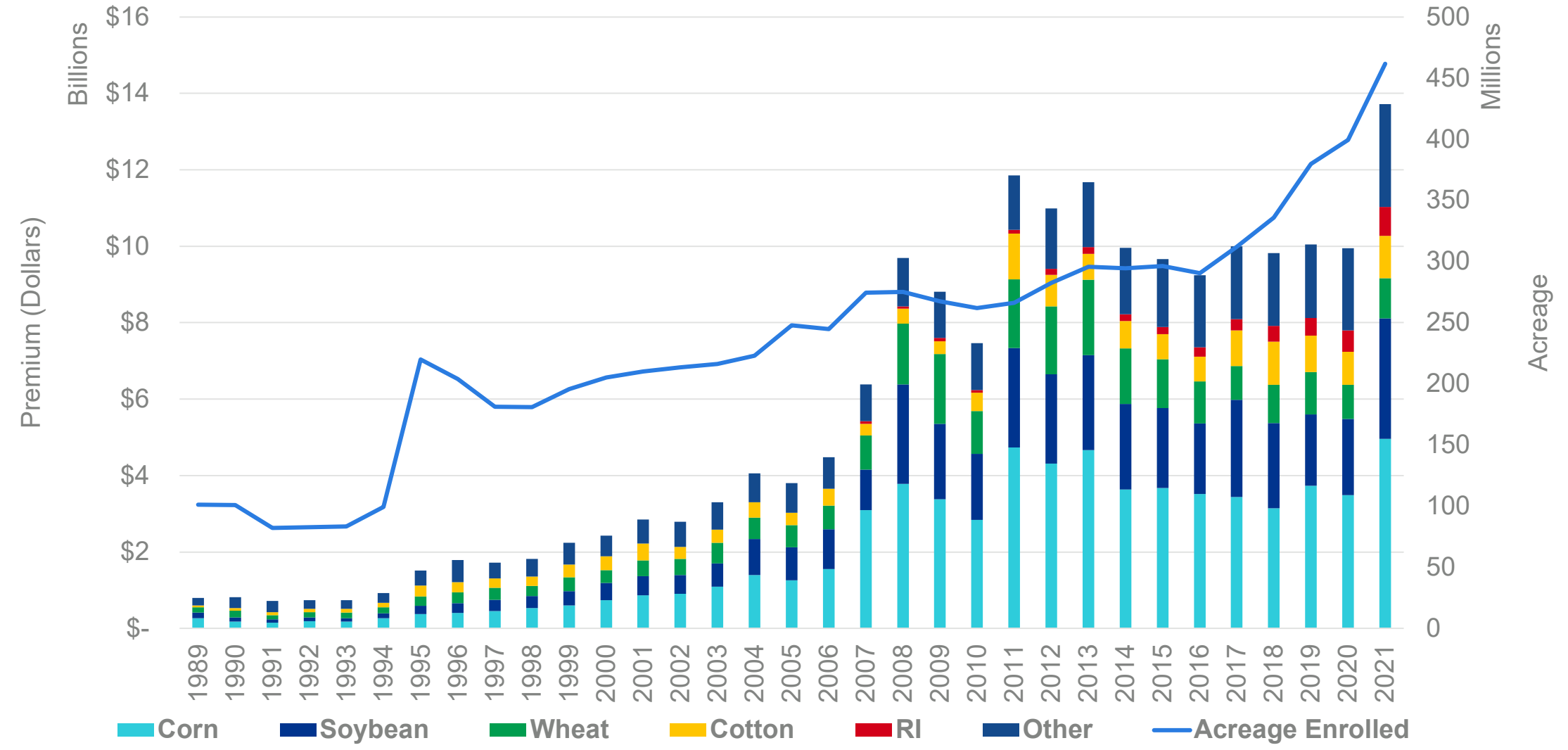




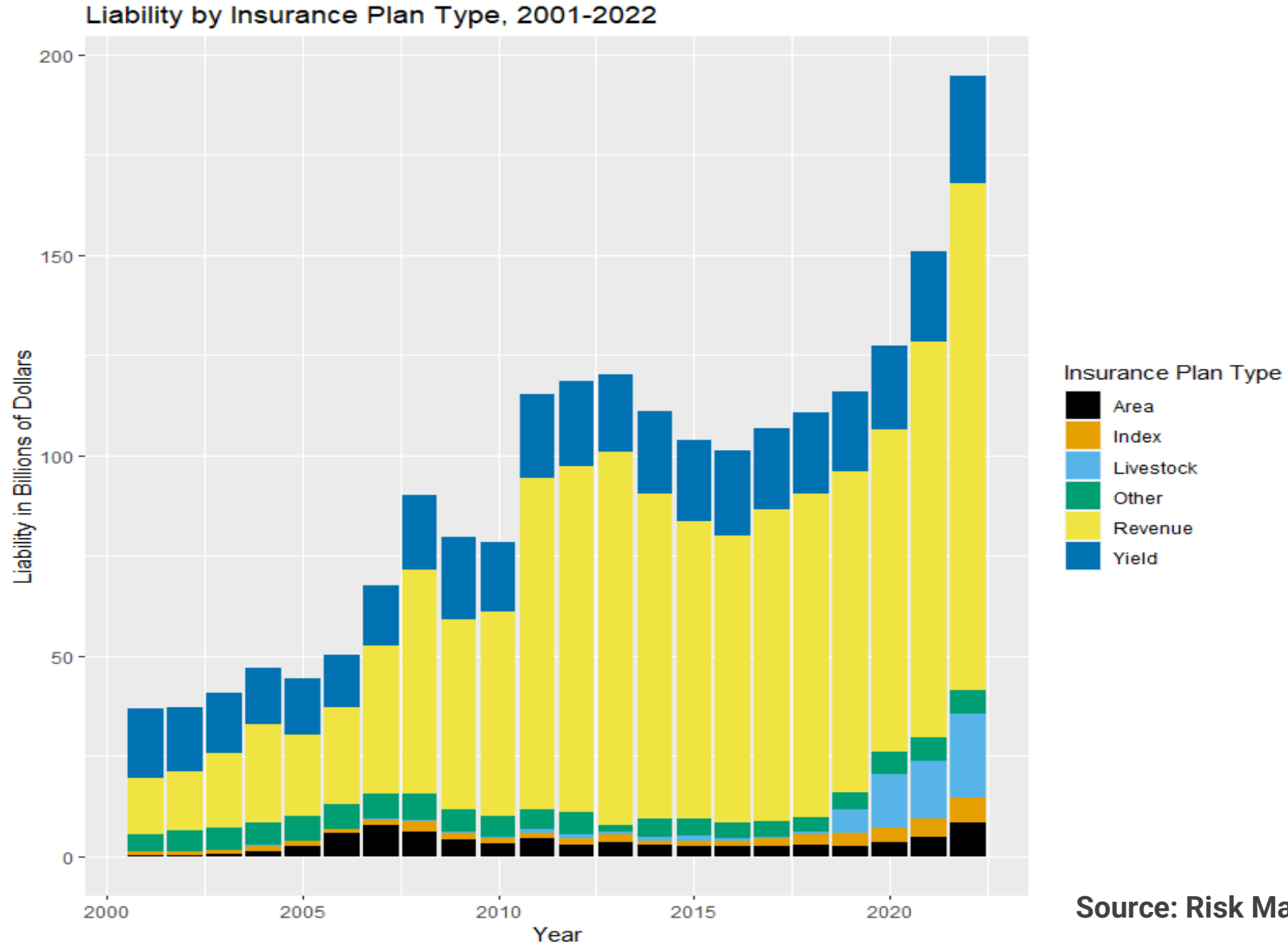
Farm Foundation Agricultural Risk Mitigation Discussion Panel

The Role of Crop Insurance to Protect Farmers Against Catastrophic Events

U.S. Crop Insurance Program Growth



U.S. Crop Insurance Program Growth

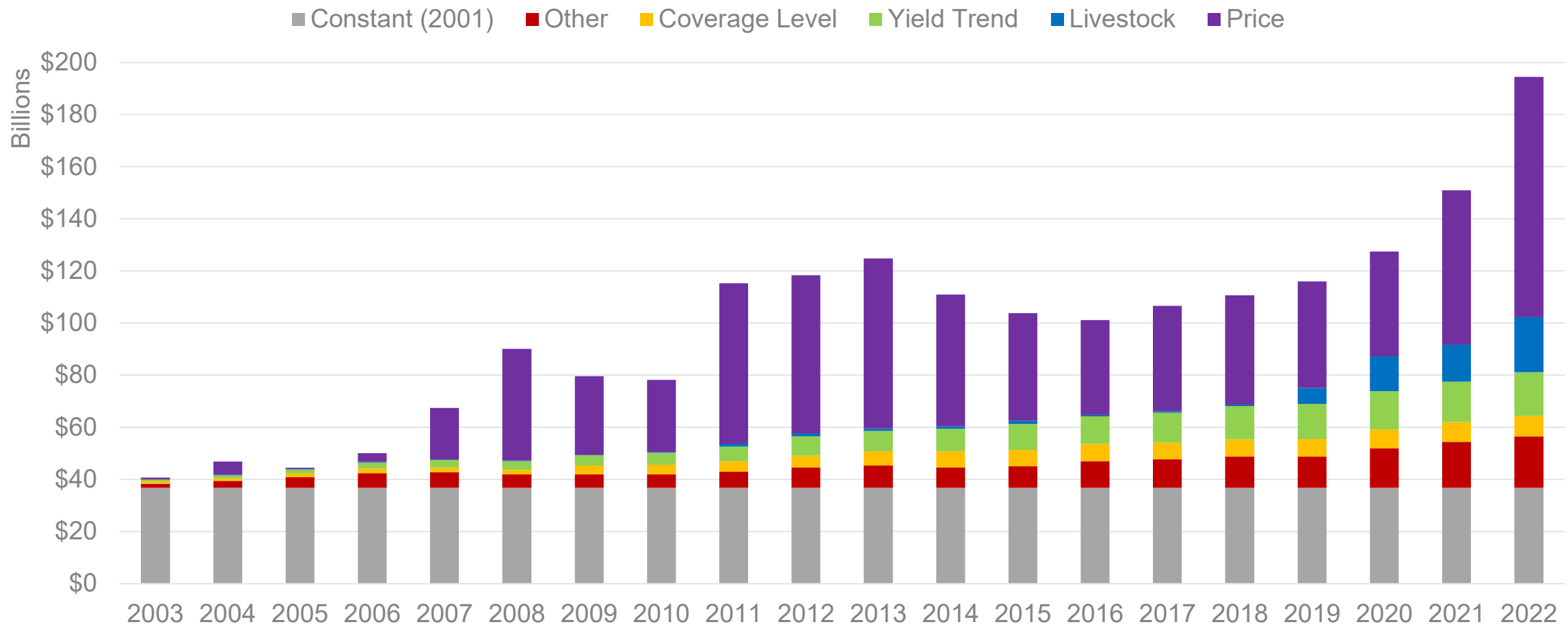


Source: Risk Management Agency

Factors Increasing Liability for the U.S. Crop Insurance Program



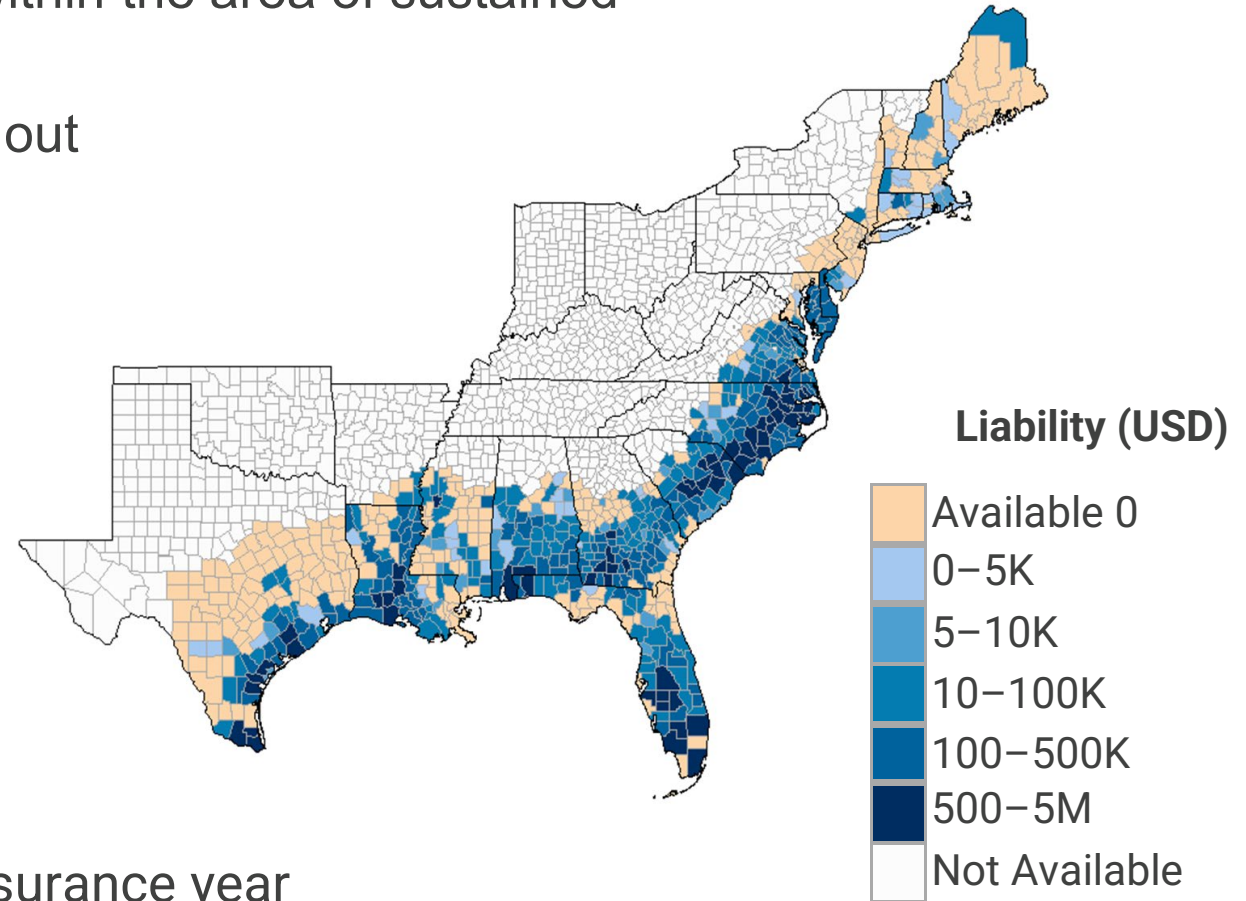
Factors Increasing Liability



New Product: Hurricane Protection-Wind Index (HIPWI)

- Triggers when a county or adjacent county is within the area of sustained hurricane-force winds
- When triggered, the entire county liability pays out

Year	Prem.	Liability
2020	USD 107 Mn	USD 650 Mn
2021	USD 191 Mn	USD 1,082 Mn

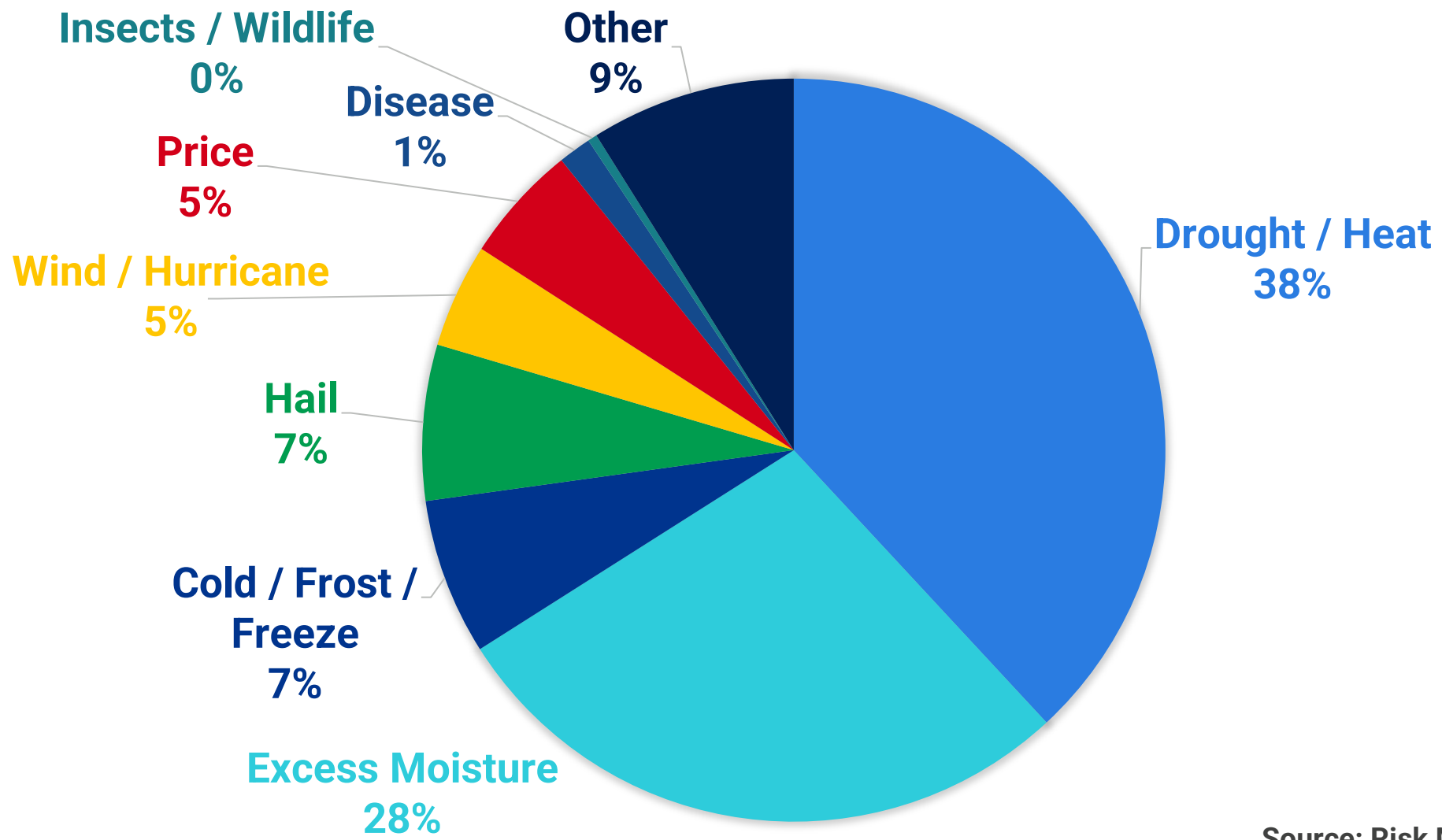


- Expanded to Tropical Depressions for 2023 insurance year

Source: Risk Management Agency

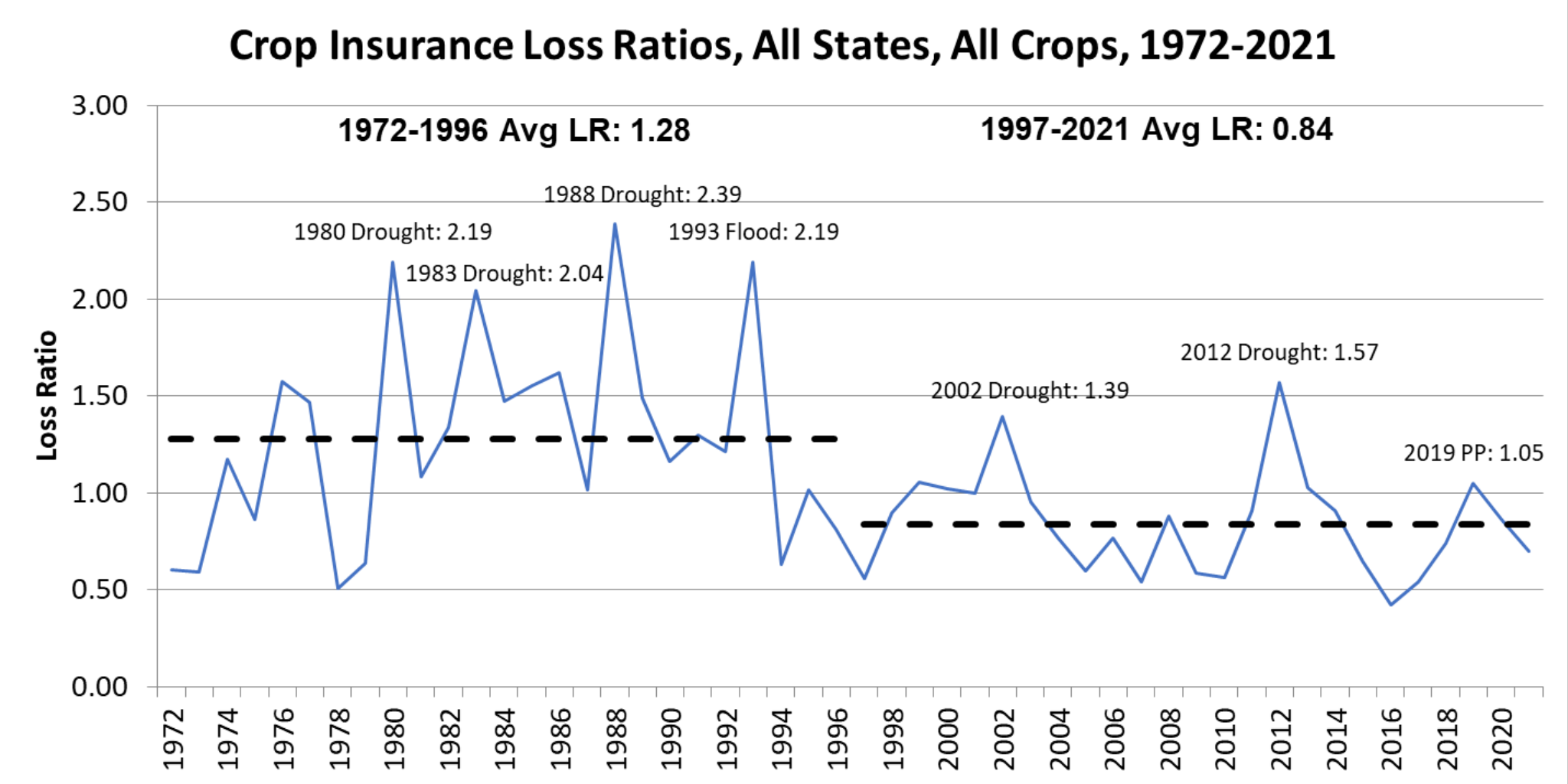
The Return Period of Damaging Weather Events in U.S. Agriculture

Extreme Weather is the Primary Reason for Crop Insurance Losses



Source: Risk Management Agency

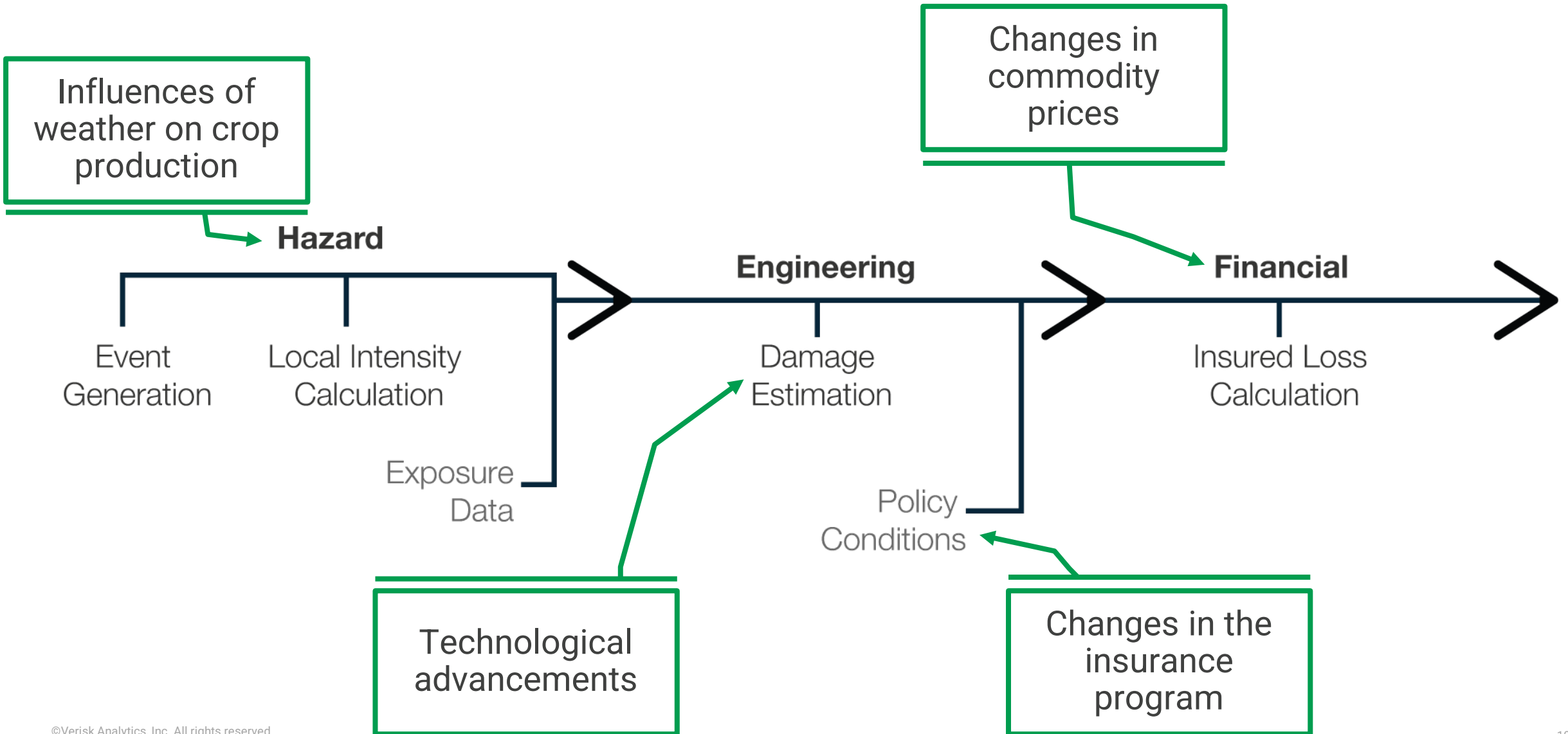
U.S. Crop Insurance Program Historical Loss Ratios



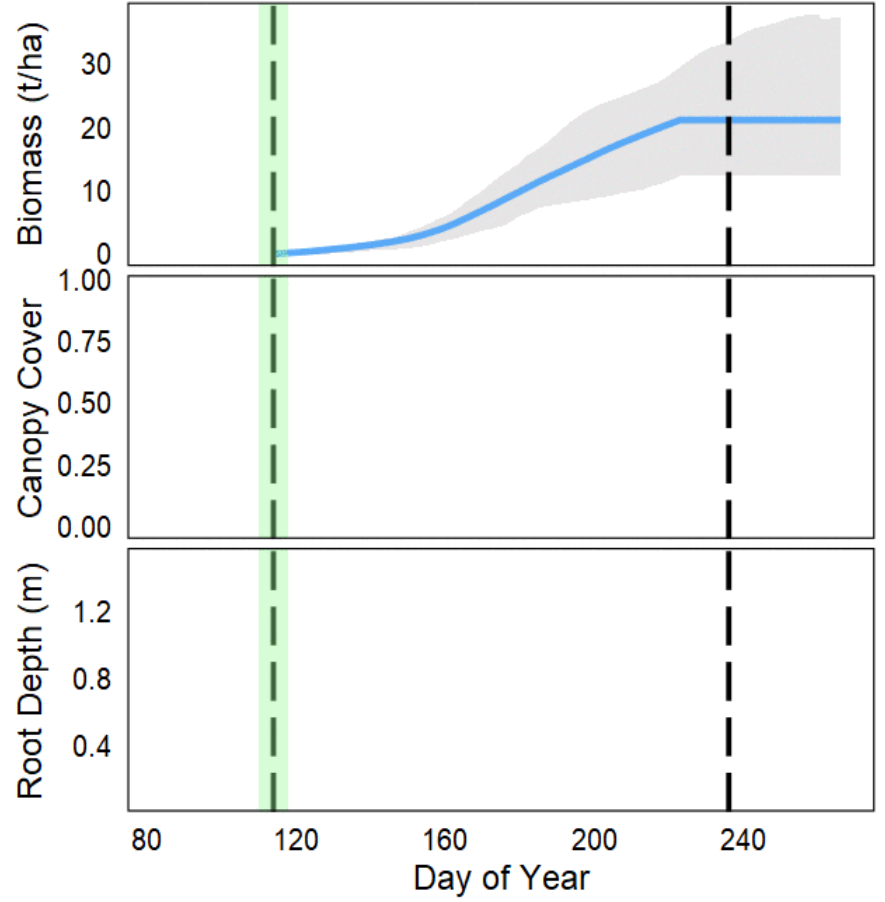
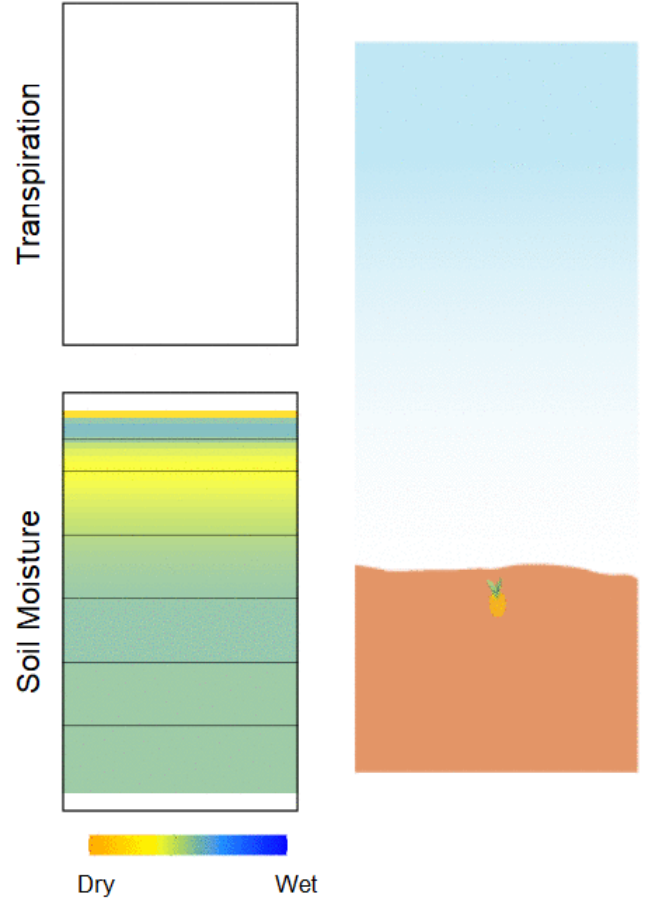
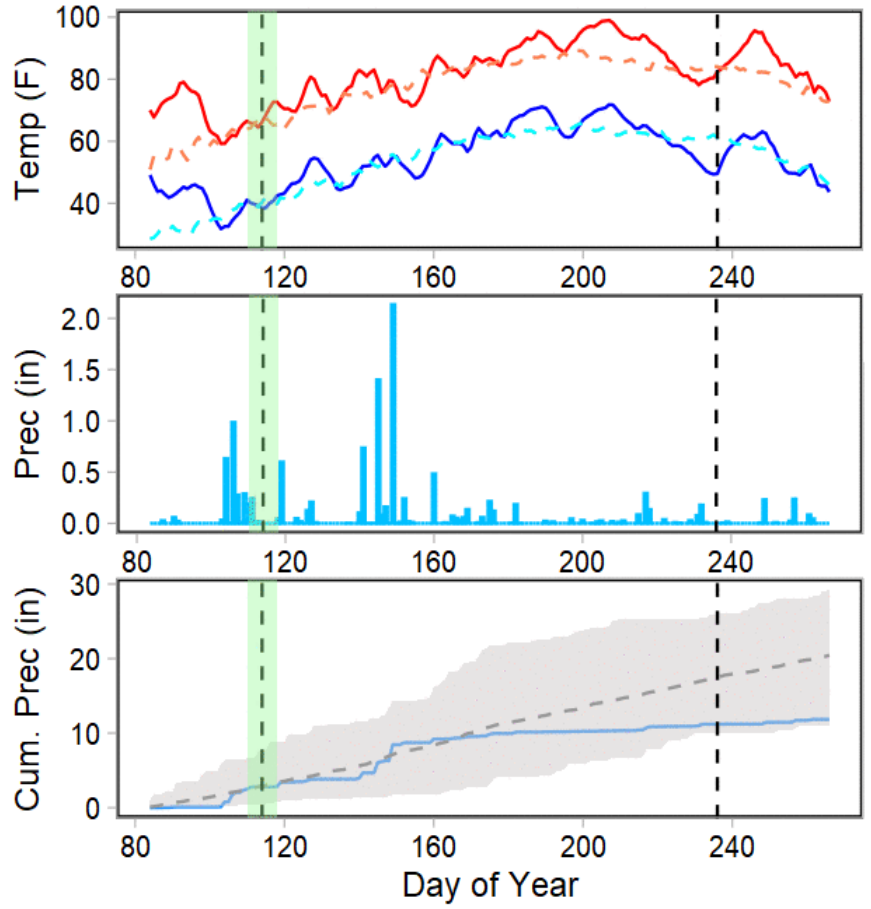
Source: Risk Management Agency

Catastrophe Models for Agricultural Risk Management

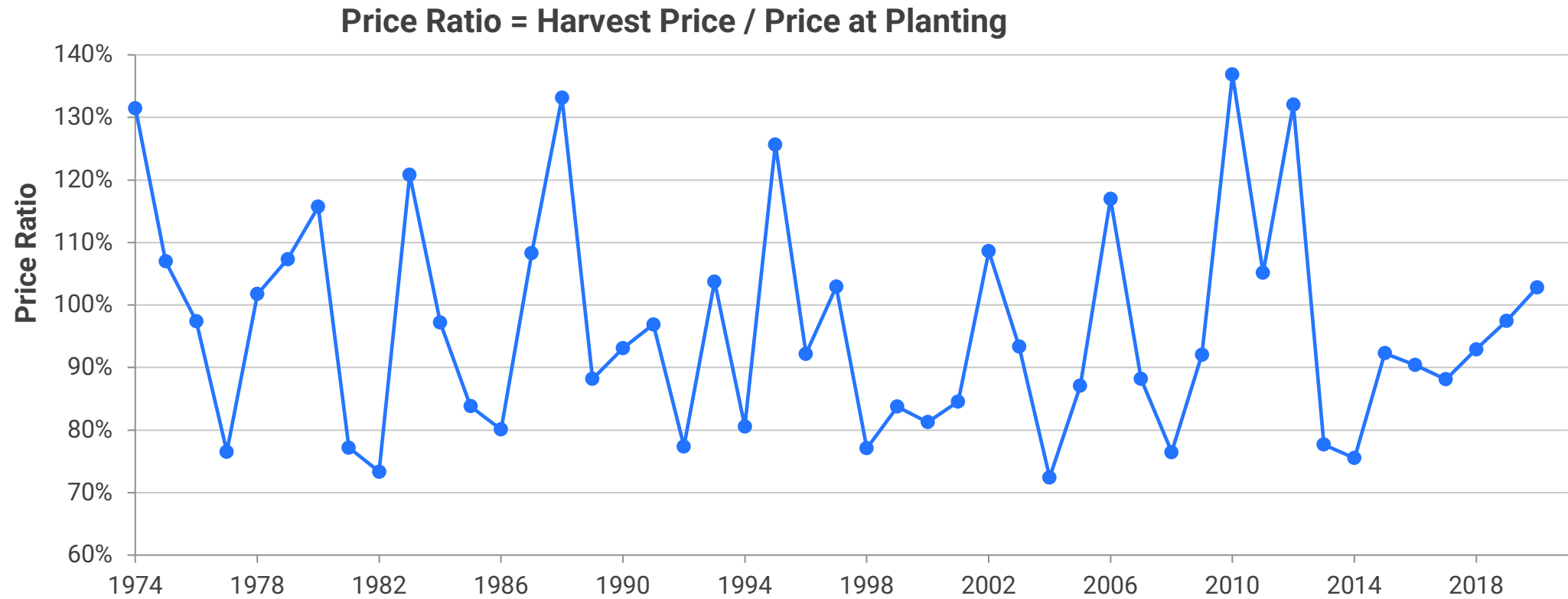
Catastrophe Model Framework for Agriculture



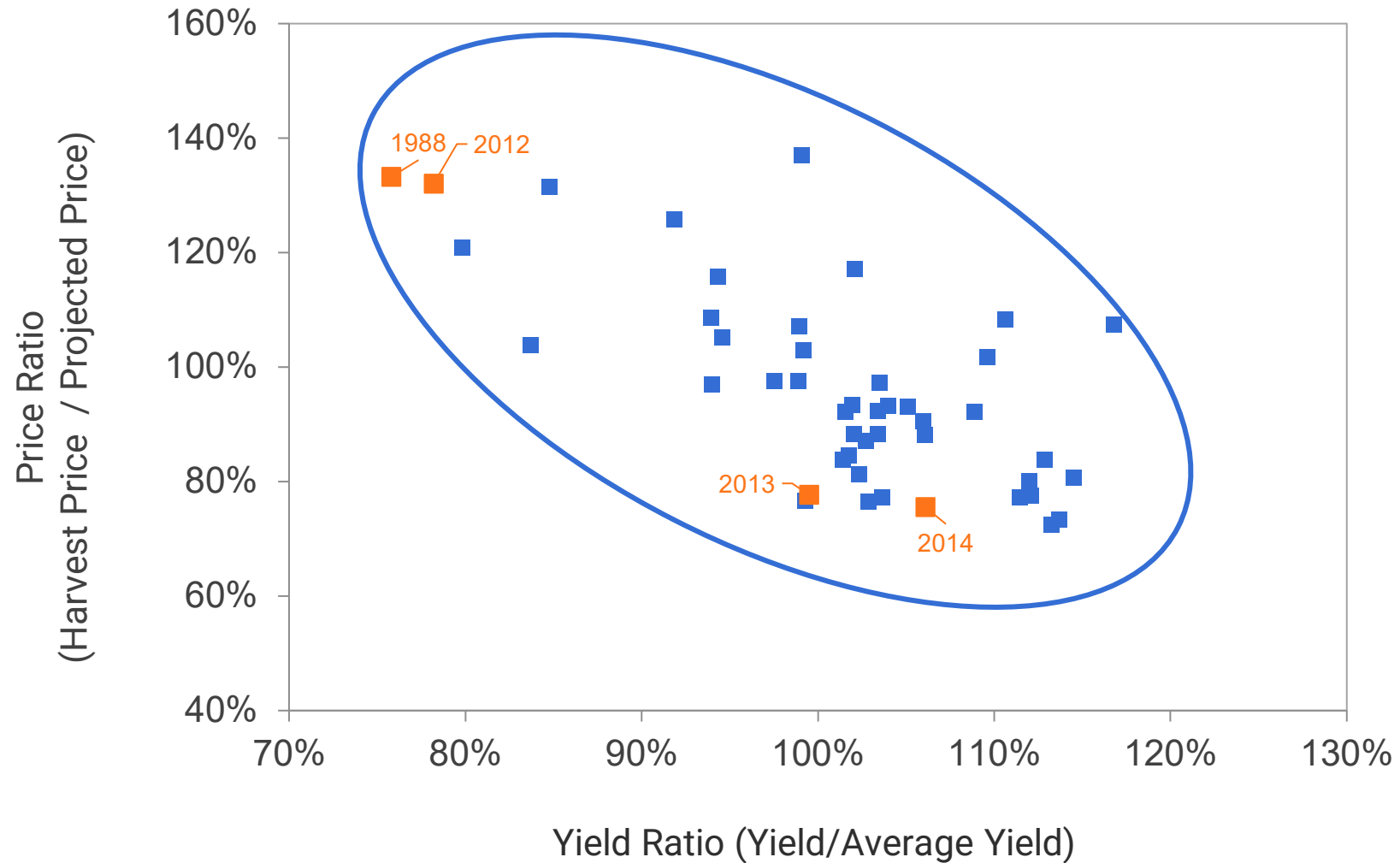
Process-Based Yield Models



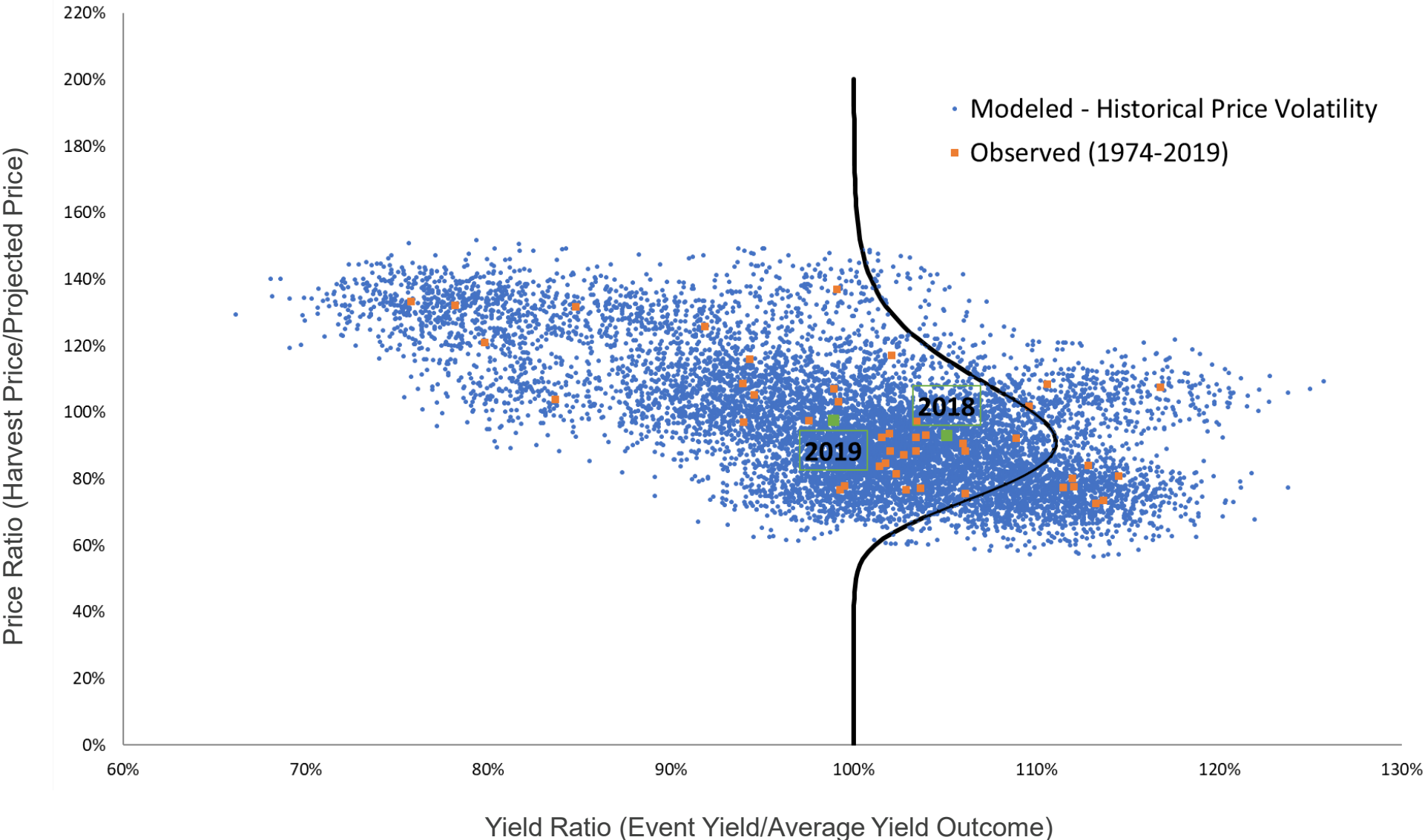
- About 80% of the policies today are revenue-based products



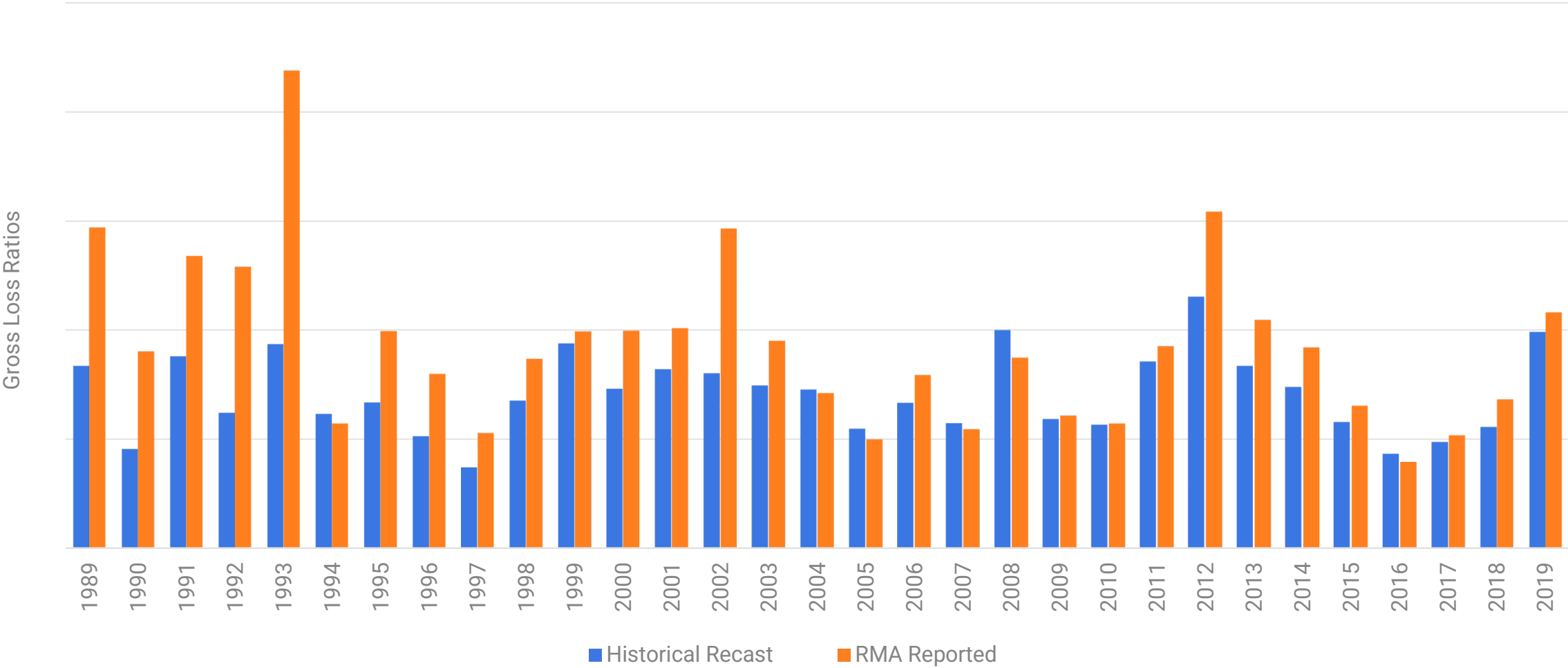
Preserving the Correlation Between Yield and Price Ratio



Stochastic Yield and Price Ratio Outcomes



U.S. MPCl Historical Recast Helps Understand Previous Books of Business in Today's Context

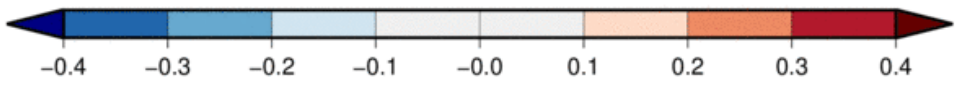
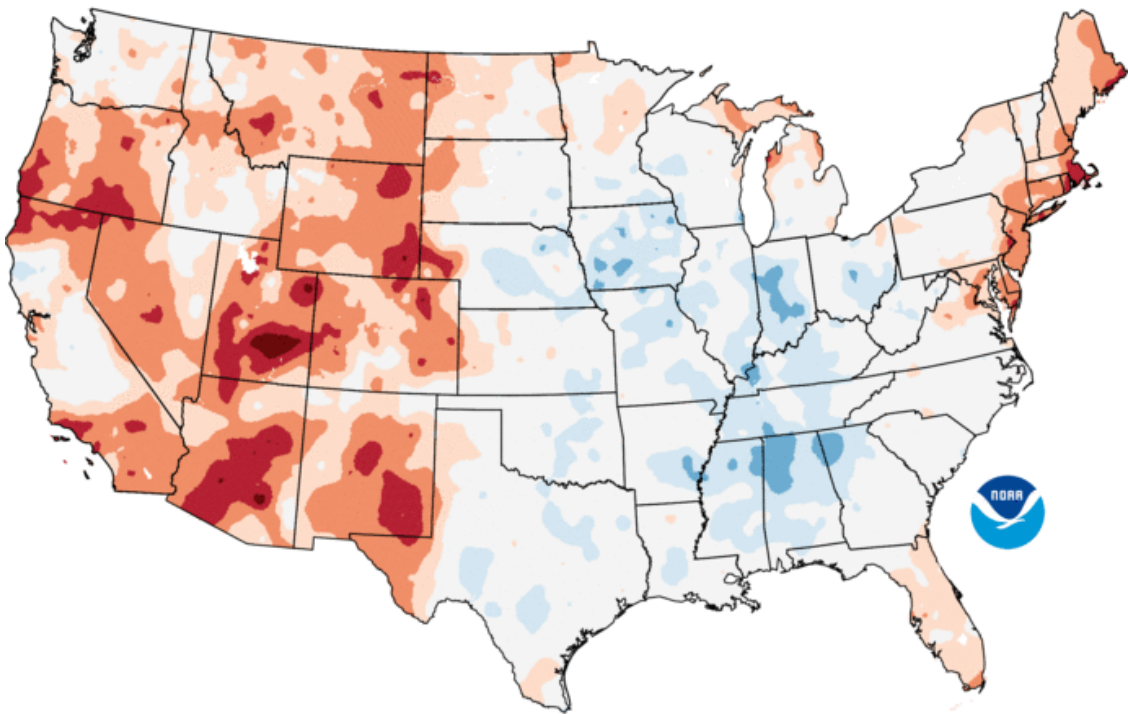


Black Swans Affecting Agriculture

U.S.

Climate Change Has Been Beneficial to Historical Yields

Average Maximum Temperature Trends Summer 1896–2020

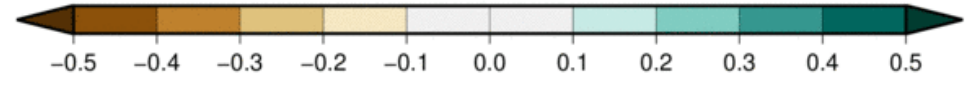
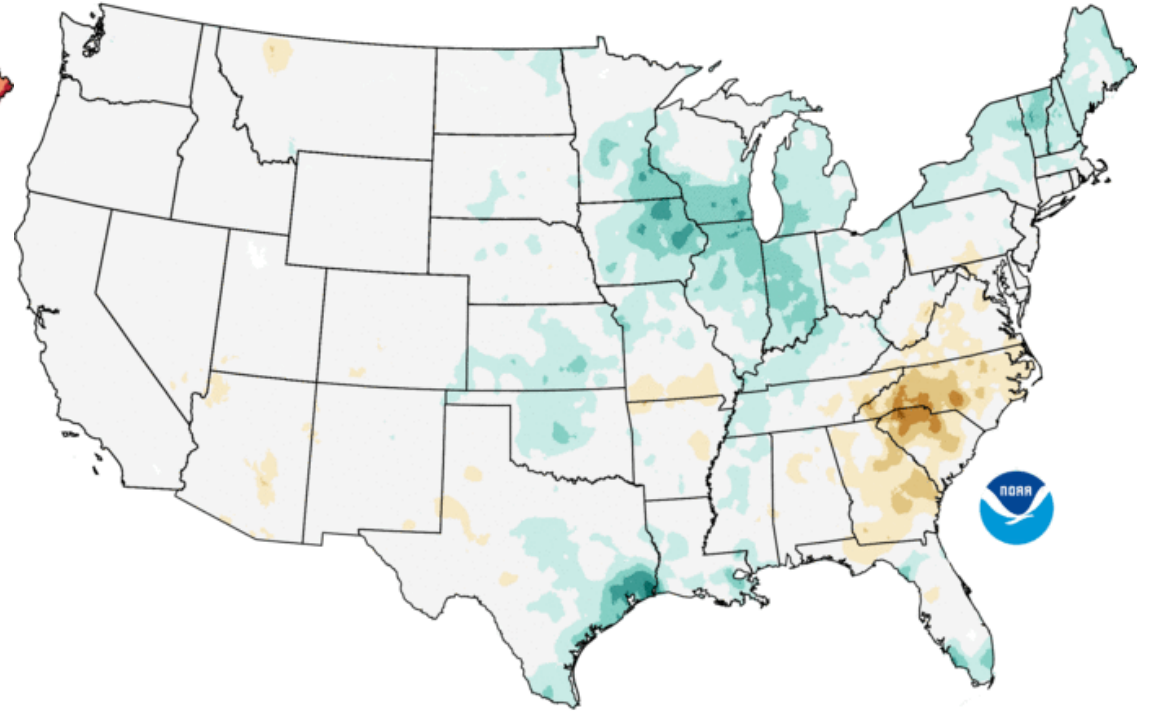


Degrees Fahrenheit per Decade

Data Source: 5km Gridded Dataset (nClimGrid)

National Centers for Environmental Information

Precipitation Trends Summer 1896–2020

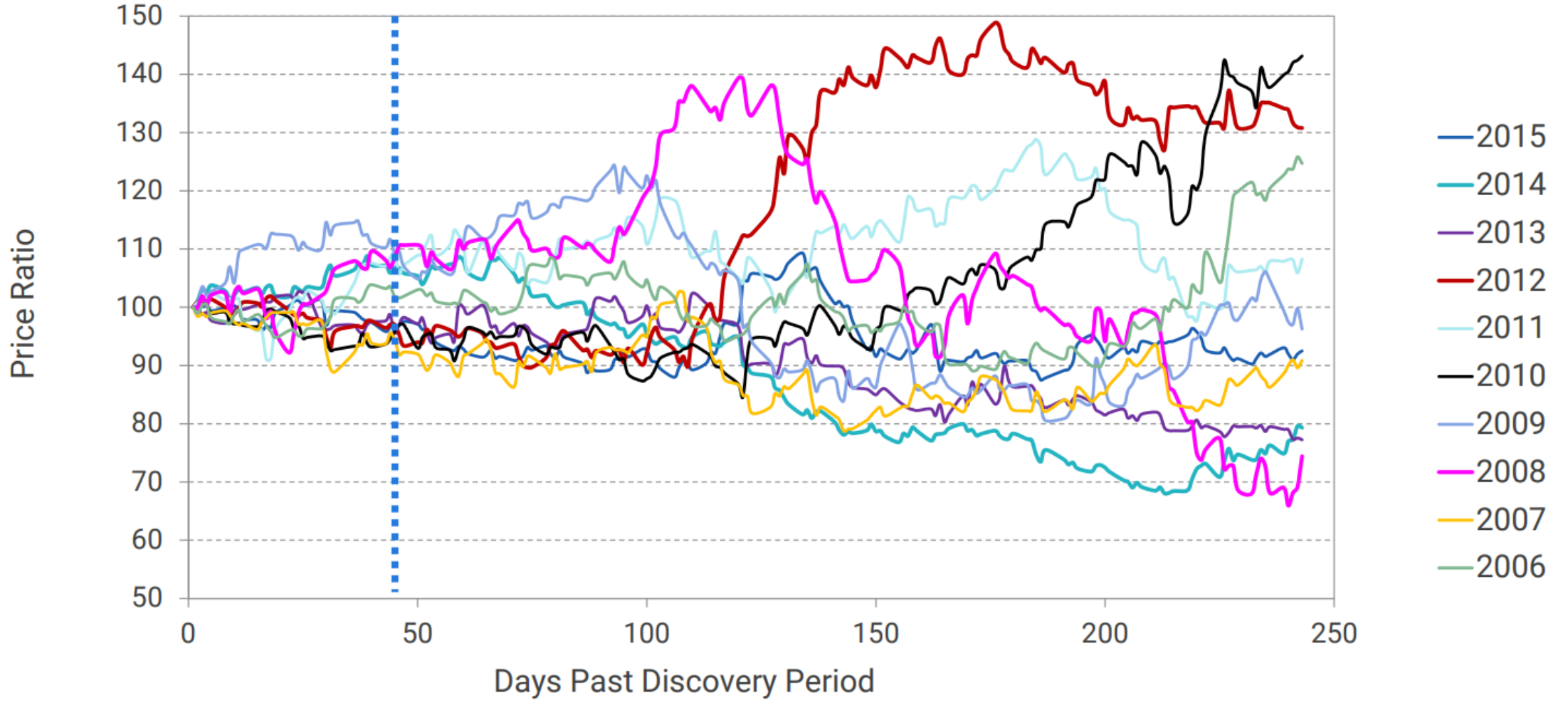


Inches per Decade

Data Source: 5km Gridded Dataset (nClimGrid)

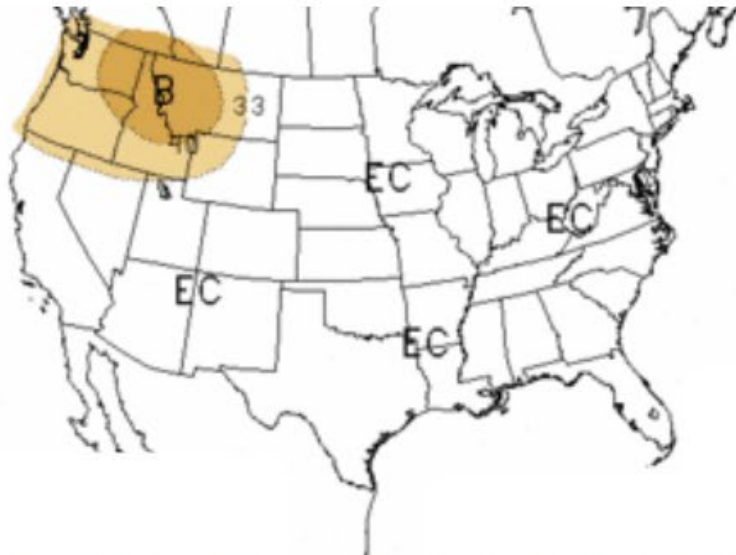
National Centers for Environmental Information

Future Prices Are Unpredictable



Seasonal Weather Forecasts Can Be Unreliable

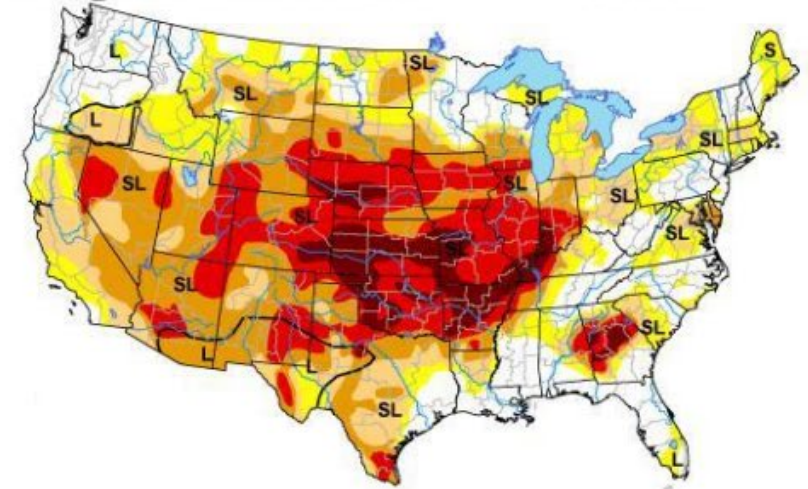
May 17, 2012, NOAA outlook for June/July/August rainfall



EC means equal chances of above normal, normal, and below normal rainfall.
 B means below normal (in Pacific NW).

This is what transpired

U.S. Drought Monitor August 14, 2012 Valid 7 a.m. EDT



Intensity:


- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types:

- Delineates dominant impacts
- S = Short-Term, typically <6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically >6 months (e.g. hydrology, ecology)

QUESTION AND ANSWER

Please submit your questions on the meeting app or use one of the microphones.

- **Go to app** 
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- **Q&A Tab**



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