

Optimal Crop Planting Schedule and Hedging Strategy

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The paper investigates the impact of ENSO-based climate forecasts on optimal planting schedules and hedging in a framework focused on downside risk. Crop yield insurance and futures contracts are available for hedging against yield and price risks. We adopt the Conditional-Value-at-Risk (CVaR) measure to assess downside risk and Gaussian copula to simulate scenarios of correlated non-normal random yields and prices. With data of a representative cotton producer in the Southeastern United States, we use *Portfolio Safeguard*, a package developed by AOrDa.com, to generate various optimal planting schedules and hedging strategies under alternative risk profiles for each ENSO phase. We find that the Neutral phase generates the highest expected profit with the lowest downside risk. In contrast, the Niña phase is associated with the lowest expected profit and the highest downside loss. Additionally, insurance-based yield hedging is found to vary significantly according to the ENSO phase and to the price bias of futures contracts.

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