What are the Perceived Weather-Related Adaptation Needs of Agricultural Operations in the Southeast US?

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Introduction

- Climate change is impacting producers (farmers, forest landowners, and grazing land managers) in the Southeast United States
- The diversity of these operations makes the producers more prone to weather-related impacts such as:
  - ➢Extreme drought, fluctuating temperatures, rising sea levels, changes in ecosystems and land cover, more intense hurricanes, and shifting economic dynamics that present difficulties for crop production, forestry, and water resources
- Offering adaptation advice requires understanding the weather-related impacts producers are most concerned about addressing

Fig 1: Orange tree branches and fruits rot on the ground in Florida after they were knocked down from the effects of Hurricane Ian (O'Meara, 2022)

Objective and Methodology

- This study sought to understand the perceived weather-related events impacting producer's farm operations in the Southeast United States
- A needs assessment study was conducted targeting extension agents and agricultural technical services providers (EA-ATSP) serving producers in the Southeast United States

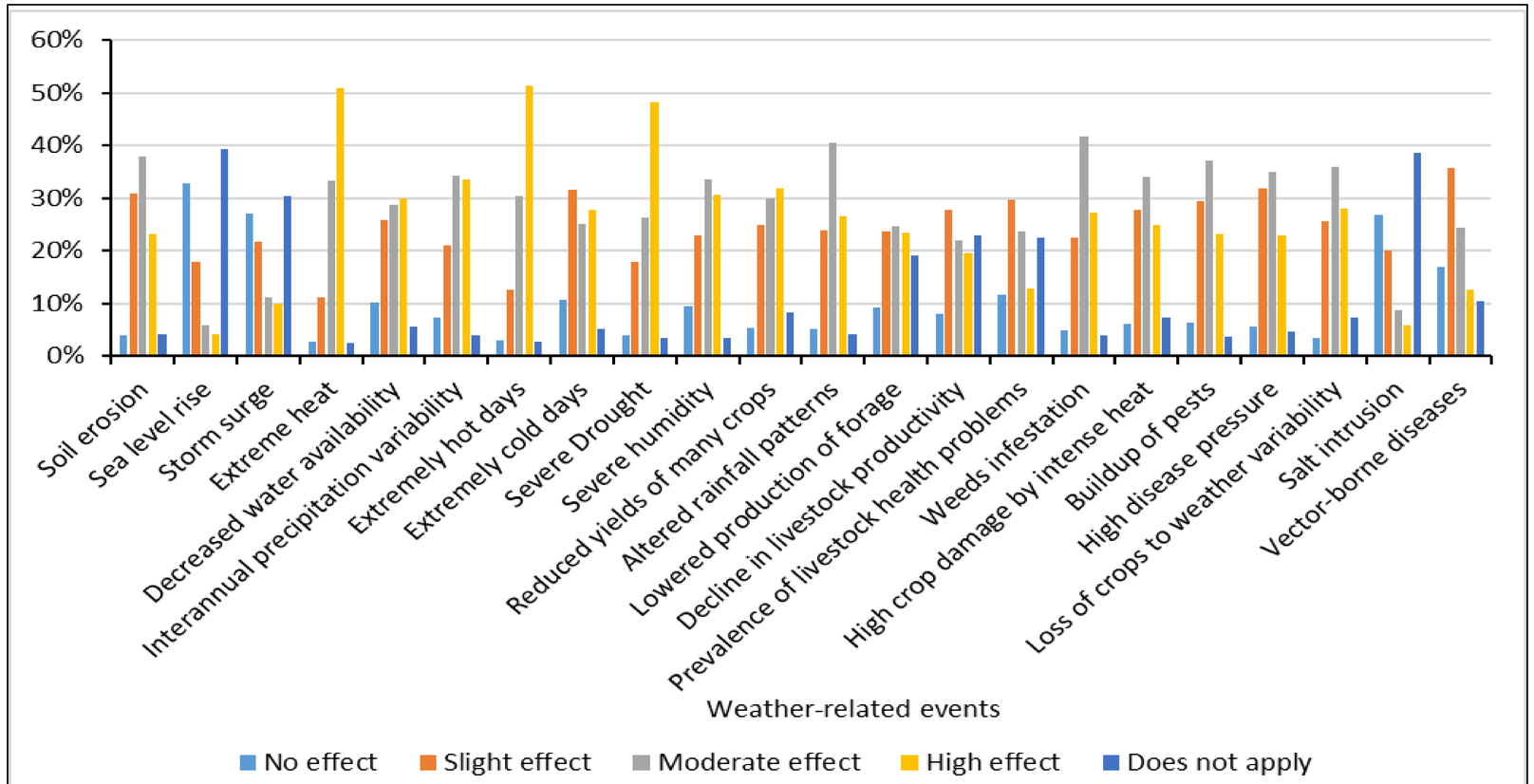

Fig 2. Weather-related adaptation needs of agricultural operations in the Southeast United States

Findings

- Extreme heat, extremely hot days and severe drought emerged as the major weather-related concerns of southeast producers

Fig 3: Soybeans show the effect of drought (USDA, 2013)

Conclusion and Recommendation

- Based on the results of this study, it is recommended that adaptation and mitigation strategies related to irrigation, drought-resistant crop varieties, and livestock breeds are a primary focus area to help build resilience and opportunities for producers' operations

References

Eck, M. A., Murray, A. R., Ward, A. R., & Konrad, C. E. (2020). Influence of growing season temperature and precipitation anomalies on crop yield in the southeastern United States. Agricultural and Forest Meteorology, 291, 108053. https://doi.org/10.1016/j.agrformet.2020.108053

Frumkin, H., Hess, J., Luber, G., Malilay, J., & McGeehin, M. (2008). Climate Change: The Public Health Response. American Journal of Public Health, 98(3), 435–445. https://doi.org/10.2105/AJPH.2007.119362