Assessing Climate Change Impacts to Agriculture in Delaware

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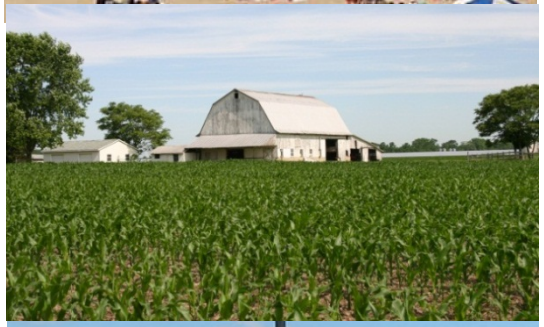
Why did we develop the Delaware Climate Change Impact Assessment ?



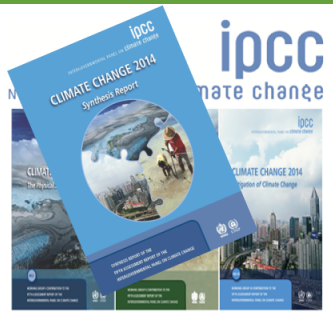
To understand and communicate the current and future impacts and risks from a changing climate.

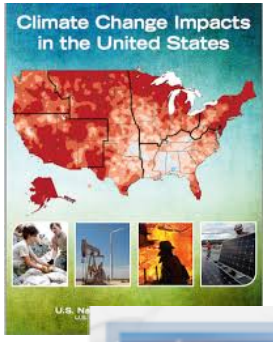
To summarize the best available science on climate change and the potential impacts for Delaware.

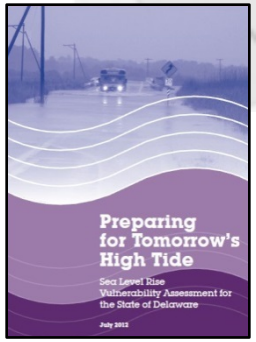
To help Delaware's citizens, communities and businesses prepare for and adapt to climate change.

Putting it Together: Scientific Sources

- Scientific literature
- Scientific assessments
- Expert interviews
  - UD Cooperative Extension
  - UD College of Agriculture and Natural Resources
  - Delaware Department of Agriculture
- Steering Committee of scientists and practitioners
  - Dr. Tom Sims, Jennifer Volk, Dr. Gulnihal Ozbay
- Delaware State Climatologist, Dr. Dan Leathers
- Climate modeling expert Dr. Katharine Hayhoe (ATMOS Research and Consulting)



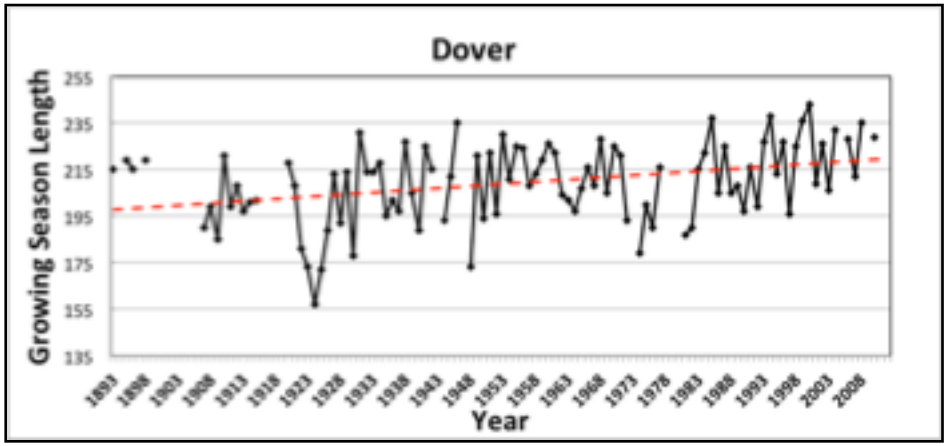




Understanding Delaware's climate: Trends and Projections

Climate Trends (observations)

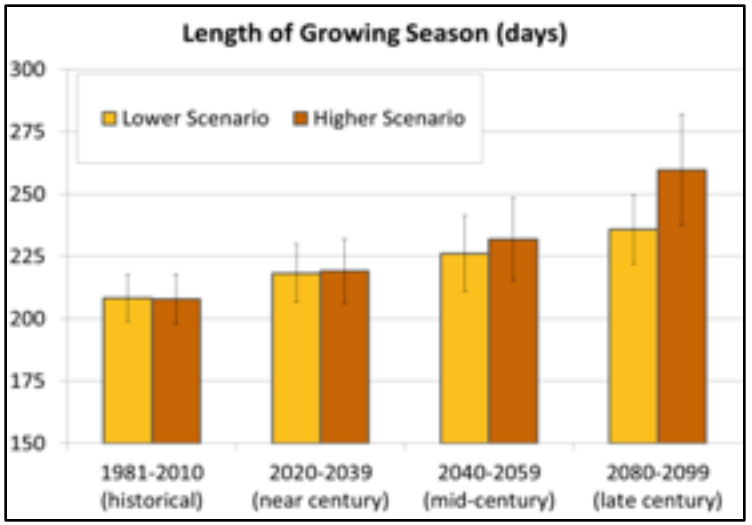
- Historic data
- Temperature and Precipitation



Source: Leathers (2014)

Climate Projections (models)

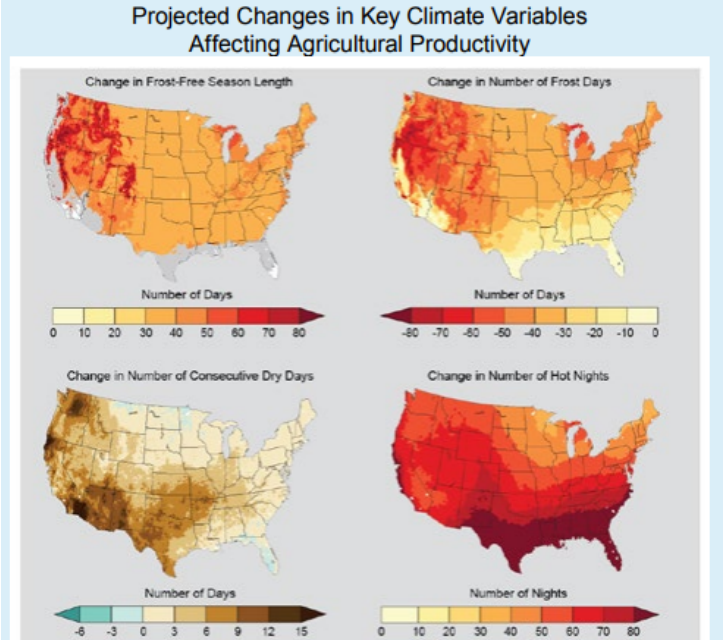
- Downscaled projections
- Temperature, Precipitation and Hybrid Indicators



Source: Hayhoe, et al (2014)

Understanding impacts: Looking at the Big Picture

- Overview of agricultural resources
  - Agricultural land use
  - Ag economy
  - Ag infrastructure
- Impacts to agriculture US-wide
  - Animal agriculture
  - Crop production
  - Forest management
- Consider external stressors
  - Land use changes
  - Environmental regulations and government programs
  - Energy costs
  - Fluctuating markets



Source: Third National Climate Assessment (2014)

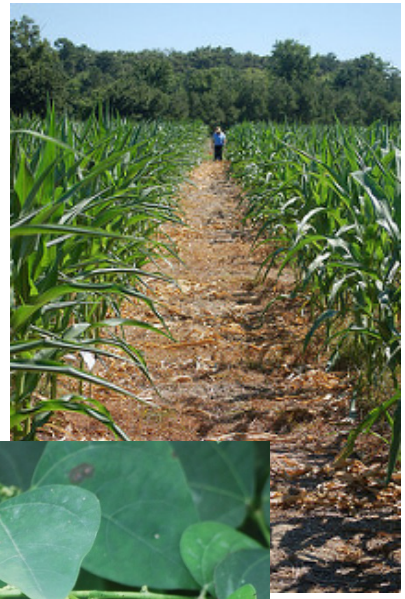
Understanding Impacts: Focus on Delaware

Vulnerability to impacts

- Animal agriculture – heat impacts
- Crop production – heat and changing rainfall
- Weeds, diseases, and insect pests
- Land use – sea level rise impacts
- Nutrient management – heat and changing rainfall

Adaptation stories

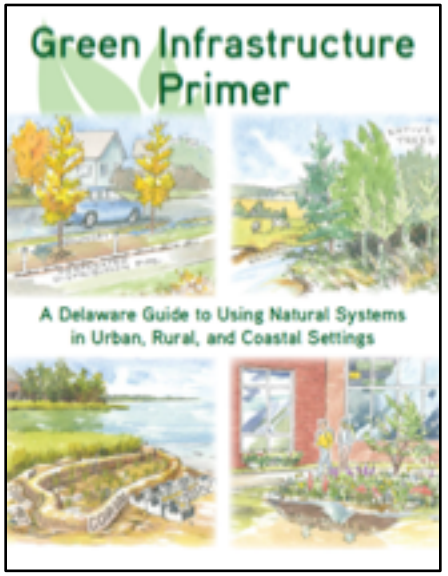
- Irrigation efficiency
- Managing heat stress in poultry houses
- Salt-tolerant crops



Building on the Assessment: Making tools and data accessible

Delaware Climate Projections Portal

- Web-based data library
- View and download climate projection data for Delaware
- 55 climate indicators – temperature, precipitation



Green infrastructure Primer

- A guide to using natural systems in urban, rural, and coastal settings
- Overview of landscape-scale and site-scale techniques

Questions? Contact me!

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