

# 360o of Silvopasturing to Adapt to Climate Change

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Climate change is already impacting farm and forest lands throughout the northeastern United States. Temperatures are increasing and more rain is falling all at once with dry periods in between. With these changes comes greater variation and uncertainty in crop and livestock production. Without modifying management, agricultural profits may decline (Melillo et al. 2014). Farmers and land managers are finding ways to adapt to the ongoing changes. Sharing experiences cultivates new ideas and techniques for reducing risk or taking advantage of new conditions. Field visits are a powerful way to view a practice in action before considering it for your land. Through virtual demonstrations you can leave your field boots behind and take a tour from your desk, ‘as if you were there’ in the field.

In partnership with University of Delaware, the National Agroforestry Center and other USDA and land grant collaborators, the USDA Northeast Climate Hub has launched the virtual demonstration network, ‘As If You Were There’. This project uses new technology and educational storytelling to feature key climate adaptation practices at farm and forest sites within the region. Through interactive 360° photography and videos, users can embark on virtual field tours from their own computer or mobile devices. These tours highlight the benefits of various adaptation actions, including agroforestry techniques. Visitors can see how others are experiencing and dealing with increasing rainfall intensity, extended growing seasons, invasive pests, and other weather and climate risks in the Northeast.

Two of the tours feature agroforestry practices. Higher average temperatures and more rainfall coming in short periods of time impact farms and can take a toll on livestock production (Hristov et al. 2017). These tours show the role agroforestry can play in helping farmers adapt to these conditions. The intent is to capture and share the stories of innovative land managers, and to inspire climate informed decision-making.

Through the USDA Northeast Climate Hub website you can take a virtual tour of **Angus Glen Farm**, a 300 acre operation located in Watkins Glen, New York (Figure 1). The farm has 80 cow-calf pairs of Angus cattle grown for seed-stock and grass-fed beef production. Brett Chedzoy and his family practice silvopasture to integrate forest, forage, and livestock management on the same land. Their goal is to sustainably produce timber and livestock, improve resiliency to weather extremes, and conserve natural resources. Maintaining both farm and forest while managing water and nutrients increases long-term income and protects soil and streams. Intensive rotational grazing, silvopasture, and living barns are practices that can increase resiliency to the changing climate.



Figure 1. A virtual tour of Angus Glen Farm in New York takes you through the farm “as if you were there”.

*"We know that forests, generally any kind of forested ecosystem and trees, are resilient to extreme weather events like droughts and floods... So, forests moderate the climate and will help us in our agricultural production." - Steve Gabriel, Agroforestry Extension Specialist, Cornell Small Farms Program*

Another virtual tour explores the silvopasture systems and adaptive management practices at Dickinson College Farm (Figure 2). Dickinson College is a private liberal arts college in Carlisle, Pennsylvania. Their farm provides food for the college campus and local community while creating a distinctive hands-on learning experience for students. By increasing species diversity, the farm is becoming resilient to the changes in climate that they are experiencing. Silvopasture also enhances their existing cattle operation, supports the whole farm system, and can increase overall profits. Through this tour, users can learn about integrating plant and animal production to create a sustainable and resilient production system. The college has a [Climate Action Plan](#) with a goal to achieve carbon neutrality by reducing and offsetting carbon emissions. To help reach that goal, the farm uses several methods to mitigate or adapt to changes in the climate. Other practices at Dickinson College Farm that increase resiliency include: hub ponds, integrated pest management, healthy soils, and riparian forest buffers.





Figure 2. Dickinson College integrates water, soil, pest, crop, livestock, and forest management on their College Farm.

These virtual demonstration sites allow those interested in agroforestry or climate change to see how others are responding to the challenge. The video interviews embedded in the tours give viewers an understanding of why farmers adopt different practices. These demonstrations serve as a model for others in the farming, agroforestry, forestry, and climate adaptation communities to communicate with audiences across the country. There is a need for easily accessible, comprehensive, and interactive resources for exploring and gaining knowledge about effective management. With this innovative outreach tool, we can share on-the ground visual examples of certain practices and immerse users into a digital field visit that feels “as if you were there”.

## Relevant sites:

<https://www.climatehubs.oce.usda.gov/hubs/project/if-you-were-there-360-demonstrations>

<https://www.climatehubs.oce.usda.gov/hubs/northeast/project/agroforestry-angus-glen>

<https://www.climatehubs.oce.usda.gov/hubs/northeast/project/dickinson-college-farms-silvopasture>

## References:

Hristov AN, Degaetano AT, Rotz CA, Hoberg E, Skinner RH, Felix T, Li H, Patterson PH, Roth G, Hall M, Ott TL, Baumgard LH, Staniar W, Hulet RM, Dell CJ, Brito AF, Hollinger DY (2018) Climatic Change Effects on Livestock in the Northeast US and Strategies for Adaptation. “Climate Change” *Journal of Climatic Change* 146: 33.

<https://doi.org/10.1007/s10584-017-2023-z>

Melillo JM, Richmond TC, Yohe GW (2014) *Climate Change Impacts in the United States: The Third National Climate Assessment*. U.S. Global Change Research Program, 841 pp. doi:10.7930/J0Z31WJ2

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**silvopasture**   **climate change**   **Adaptation**