Upper Chesapeake Bay LTAR, University Park, PA

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The Upper Chesapeake Bay LTAR comprises four Pennsylvania watersheds that span the major upland conditions of the Chesapeake Bay's watershed: Spring Creek and Mahantango Creek watersheds in the Appalachian Valley and Ridge Province; Anderson Creek watershed in the Allegheny Plateau Province; Conewago Creek watershed in the Appalachian Piedmont Province.

The Upper Chesapeake Bay LTAR is led by USDA-ARS's Pasture Systems and Watershed Management Research Unit based on the campus of Penn State University in University Park, PA. The Unit's mission is to support environmentally and economically sustainable farming in the northeastern U.S. by improving agroecosystem management. Expertise includes agronomy, animal science, chemistry, geospatial information systems, hydrology, landscape ecology, plant physiology, simulation modeling and soil science. The Unit houses three CRIS Projects whose emphases, by ARS national program, are:

> Pasture Forage and Rangeland Systems (National Program 215) to develop information and tools for diverse forage and grazing lands, improving production of forage, food, and fiber, and enhancing services such as carbon sequestration, greenhouse gas mitigation, and bioenergy production;

> Water Availability and Water Management (National Program 211) to link agricultural management with water quality and advance practices and strategies that balance production and agroecological services;

> Climate Change, Soils and Emissions (National Program 212) to evaluate system interactions and improve farm management effects on air, soil, and water quality through whole farm modeling.

The Upper Chesapeake Bay LTAR site falls within USDA's Northeast farm production region, the Mid-Atlantic HUC 2 region, and NEON's Northeast and Mid-Atlantic domains. Because the Upper Chesapeake LTAR covers three of the four major physiographic regions of the Chesapeake Bay Watershed, it offers comparable physiographic and management conditions to other zones of the Appalachian mountains, and includes species characteristic of biomes to both the north and south of the region.

Research and technology transfer within the Upper Chesapeake Bay LTAR is built upon strong partnerships across the Chesapeake Bay region with major universities (Penn State, Cornell, Univ. Maryland, Univ. Maryland Eastern Shore, Univ. Delaware, Univ. West Virginia, Virginia Tech, Tufts), federal agencies (USDA-NRCS, USGS, US Park Service), state and local conservation agencies, private corporations (Applied Geosolutions, AgriDrain, PhosphoReduc) and non-profit organizations (Chesapeake Bay Foundation, Northeast Pasture Consortium, Canaan Valley Institute, National Cattleman's Beef Association, Grazing Lands Conservation Association).

Principal research emphases of the Upper Chesapeake Bay LTAR are anticipated to be:

1. Maintaining viable small farms.
2. Understanding and ensuring sustainable nutrient management at local and national scales.
3. Improved use and function of marginal lands.
4. Resilience of agriculture to climate change.