



## USDA Regional Climate Hubs: Managing your risk in a changing climate.



# Climate Risks in the Northwest

## What type of agricultural production is in the Northwest?

Agriculture in Oregon, Washington, and Idaho produces three percent of the region's gross domestic product, over half of the nation's potato crop, and around 17 percent of the nation's wheat and 11 percent of the nation's milk. Nearly a quarter of the land area in these states is agricultural. Timber remains a substantial contributor to the economies of all four states in the region. In Alaska, farming is largely confined to the Matanuska Valley and an area east of Fairbanks, but timber, fish, game and other biological resources are important throughout the cash economy and essential for many subsistence users, especially in rural areas. The importance of agriculture to the region is demonstrated by the fact that over the past 30 years, less land has been converted from agriculture here than elsewhere in the U.S. These lands and their resources are valued locally, regionally, and nationally.

## How are climate change and weather variability affecting Northwestern producers?

Producers and landowners in the Northwestern U.S. are facing challenges of a changing climate and increased weather variability already, and altering their management decisions as a result. Examples of climate and weather impacts include:

- **Reduced Snowmelt:** Northwest growers know that winter snowpack is essential for meeting irrigation needs in the spring. Higher temperatures can result in earlier snowmelt and more rain rather than snow in the mountains, leaving less water flowing during the growing season. This has been the trend since the 1980s, and researchers predict that it will continue.
- **More Frequent Fires:** Wildfires have increased in the last decade and are predicted to increase even more, reducing timber yields, altering wildlife and fish habitats, increasing the risk of soil erosion, and expanding the range of invasive annual weeds on public and private rangelands.
- **Higher Temperatures and Drought:** Temperature and precipitation changes can produce drought, heat stress to crops and livestock, and increases in plant diseases, pests, insects and weeds. Drought in the Northwest can stress forest vegetation and favor outbreaks of bark beetles and other pests, leaving broad swaths of dead trees. On the Kenai Peninsula in Alaska, a spruce beetle outbreak caused massive tree mortality that started in 1980's and continued for the next 20 years. Models predict that as temperatures increase, spruce forests in Alaska will be at greater risk due to continued beetle outbreaks.



# What is USDA doing about it?

USDA has established the USDA Northwest Regional Climate Hub (NRCH), located in Corvallis, Ore. This multi-agency effort (Agricultural Research Service, Forest Service, Natural Resources Conservation Service) is being led by Beatrice Van Horne, a Program Manager at the Forest Service Pacific Research Station. The Hub will deliver science-based knowledge and practical information to farmers, ranchers, and forest landowners that will help them to adapt to climate change and weather variability by coordinating with local and regional partners in Federal and state agencies, universities, NGO's, private companies, and Tribes.

## ***The Hub will provide:***

- Technical support for land managers to respond to drought, heat stress, floods, pests, and changes in growing season.
- Regional assessments and forecasts for hazard and adaptation planning.
- Outreach and education for land managers on ways to mitigate risks and thrive despite change.

## Building on success stories

***Risk Management in Natural Systems:*** The Pacific Northwest Research Station of the U.S. Forest Service is identifying forest and range ecosystems at risk from climate change and evaluating options to avoid consequences. Examples include incorporating causes and consequences of above- and below-ground water flows into planning, maintaining forest connectivity to preserve habitat for wolverine, marten and lynx, and thinning forests to improve drought and fire resistance.

***Water Supply Forecasting:*** The Natural Resources Conservation Service's Snow Survey and Water Supply Forecasting Program operates cooperatively with public and private partners. Partners help to support the collection of snow-related climate data as part of a network of 1,180 manually measured snow courses and 885 automated snow telemetry (SNOTEL) sites. The data are used to identify changes in snowpack and develop water supply forecasts and outlooks for management of irrigation water, reservoir management for municipal water supplies, hydroelectric power generation planning, recreation and many other uses.

***Cereal Adaptation to Climate Change:*** ARS is cooperating with land-grant universities in the "Regional Approaches to Climate Change for Inland Pacific Northwest Agriculture" (REACCH) project to increase the capacity of Inland Pacific Northwest cereal production systems to adapt to and mitigate climate change. ARS scientists and programs in the Pacific Northwest area are also developing regional models and tools to: improve hydrologic forecasting in snow-dominated systems of the Pacific Northwest; predict regional soil erosion in forest and rangeland ecosystems; develop adaptive management strategies to rehabilitate burned areas and restore weed-invaded rangelands; and improve productivity of Pacific Northwest agricultural and range lands under current and potential future climate conditions.

## Need more information?

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