

Agriculture

Preparing Washington for a Changing Climate



Washington's climate is changing in ways that could affect food and livestock production.

Change in crop growth and yields

Climate change is altering the conditions favorable for growing certain crops. Warmer temperatures, higher carbon dioxide levels, and more frequent and severe floods and droughts could significantly impact crop yields.

- Warmer temperatures can make some crops grow more quickly and lengthen the growing season as spring comes earlier and fall lasts longer. However, too much heat can reduce yield.
- Higher carbon dioxide levels can increase yields. However, this benefit could be offset if temperatures rise above the optimal level or sufficient water and nutrients are not available.
- More frequent and severe events, such as extreme rainfall, floods, droughts, and heat waves can harm crops and reduce yields.
- Irrigated crops such as apples and cherries will especially be affected by warmer temperatures, reduced summer water supplies and more severe and frequent droughts.

Increased stress from invasive weeds, diseases and pests

Washington will likely become more vulnerable to invasion by new insect pests, invasive weeds, and diseases that benefit from warmer temperatures. Warmer temperatures allow invasive weeds and pests to expand their ranges northward and allow more pests to survive the winter and complete additional life cycles in the longer growing season.

Reduction in livestock productivity

More severe and frequent heat waves pose a threat to livestock well-being. Forage and rangeland quality are also affected and the land's ability to supply enough food for livestock is expected to decline.

Changes in global markets

Washington is the nation's third largest exporter of food and agricultural products. Washington will likely be looked on to provide more food to other regions of the world experiencing crop failures from rising sea levels, heat waves, droughts, floods, and increased pests.



Agriculture Strategies to Prepare for a Changing Climate

Agriculture is the key economic driver and employer in most regions of the state. Washington's agriculture is highly diversified, with more than 300 commodities. Washington State's Integrated Climate Change Response Strategy lays out a roadmap to help farmers and ranchers anticipate and respond to the opportunities and challenges of climate change and extreme weather events. Response strategies include:

- Support programs and projects that help farmers transition toward sustainable agriculture.
- Protect and conserve farmland and provide information and incentives to help farmers prepare and respond to climate risks.
- Identify drought vulnerable basins and promote best practices to improve irrigation efficiency and conserve water.
- Enhance programs and activities to monitor and swiftly respond to new pests, weeds, and diseases.
- Engage the agricultural sector and rural communities in adopting new policies, technologies and practices that reduce climate risks.

Taking action now can increase our resilience, ensure Washington's economic vitality, and help keep agriculture sustainable in a changing environment.

Economic Costs to Irrigated Agriculture

Washington's total farmland was about 15 million acres in 2007, with more than 1.8 million acres under irrigation. The total farm production value was \$7.7 billion in 2008, with \$2.5 billion from irrigated crops, such as apples, cherries, potatoes, and various vegetables. Potential costs from climate change impacts related to changes in water availability and increased water shortages could be significant. Water shortages in the spring and summer are projected to result in irrigated crop losses in the Yakima River basin of \$46 million per year by 2040.

More information

Ecology's Climate Change website:

www.ecy.wa.gov/climatechange/ipa_responsestrategy.htm

Contact

Hedia Adelsman | (360) 407-6222

hade461@ecy.wa.gov

Joanna Ekrem | (360) 407-7144

jekr461@ecy.wa.gov

August 2012

Publication No. 12-01-006

Photo credits:

See page 200 of the Response Strategy report.