CLIMATE RESILIENCE FOR WASHINGTON AGRICULTURE

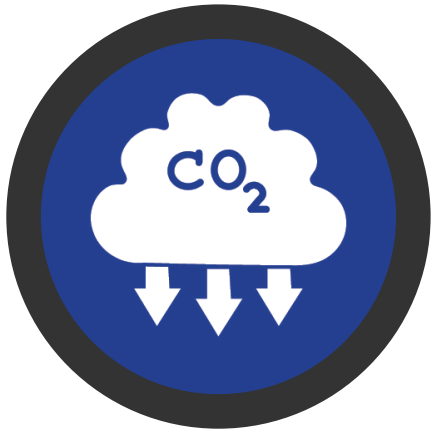
Dani Gelardi, PhD
Soil and Climate Scientist
February 2026

Leslie Michel, WSDA

Climate Resilience Plan for Washington Agriculture

March 2025 | Olympia, Washington

Washington State Department of Agriculture



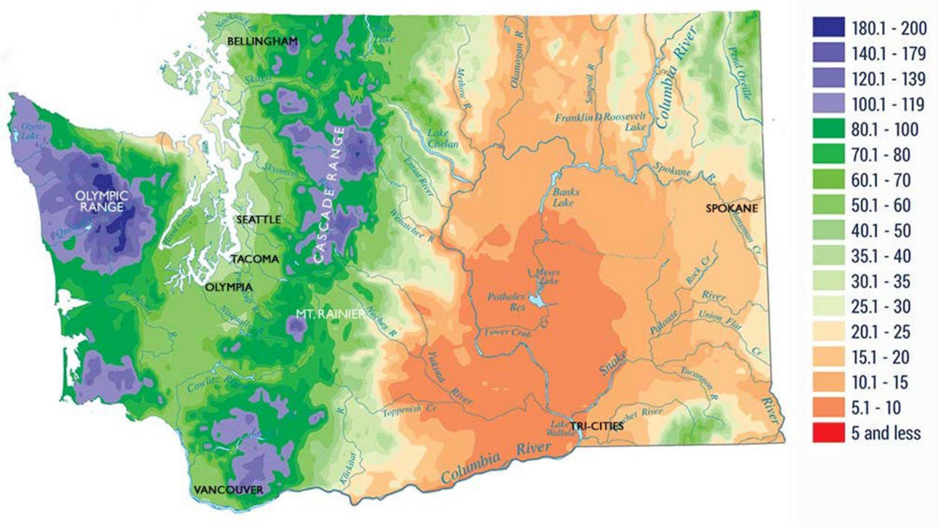
WSDA Washington State Department of Agriculture

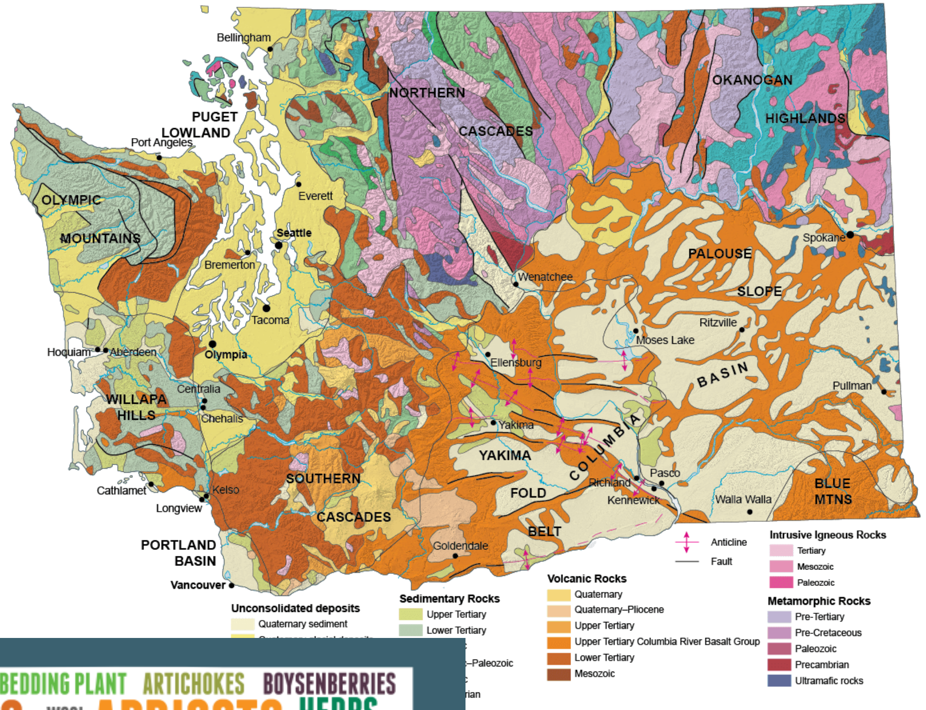
ECO northwest

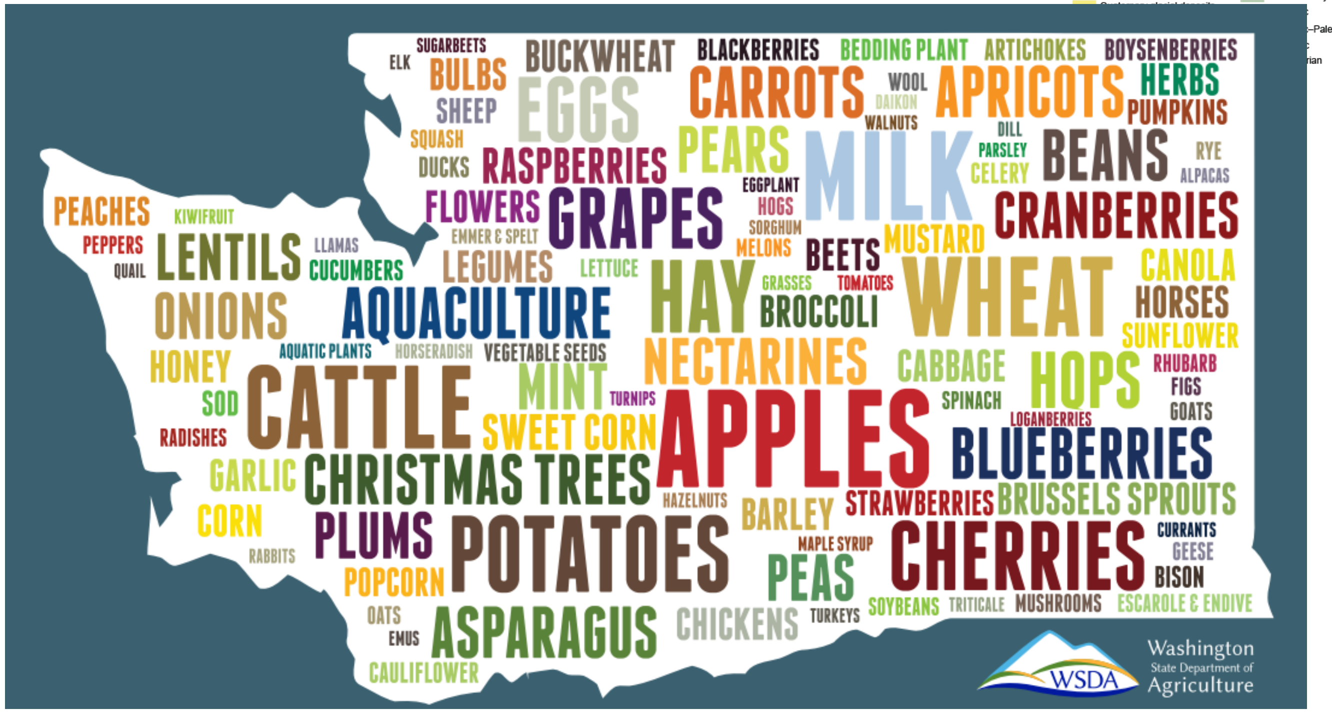
TRIANGLE

WASHINGTON STATE UNIVERSITY

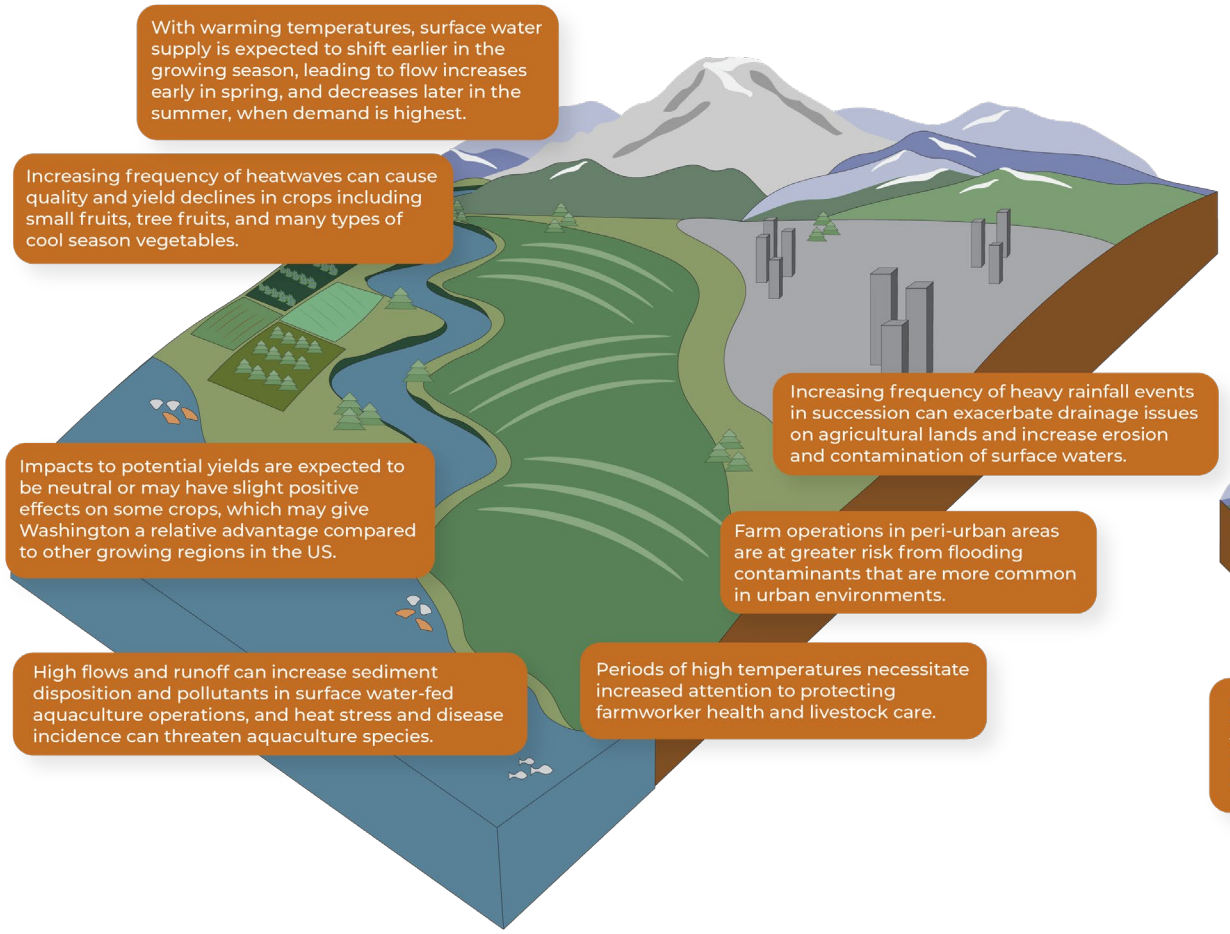
semillero de ideas
centro de innovación de campesinos


BELLINGHAM
OLYMPIC RANGE
SEATTLE
TACOMA
OLYMPIA
MT. RAINIER
CASCADE RANGE
SPOKANE
TRI-CITIES
VANCOUVER
Columbia River
180.1 - 200
140.1 - 179
120.1 - 139
100.1 - 119
80.1 - 100
70.1 - 80
60.1 - 70
50.1 - 60
40.1 - 50
35.1 - 40
30.1 - 35
25.1 - 30
20.1 - 25
15.1 - 20
10.1 - 15
5.1 - 10
5 and less

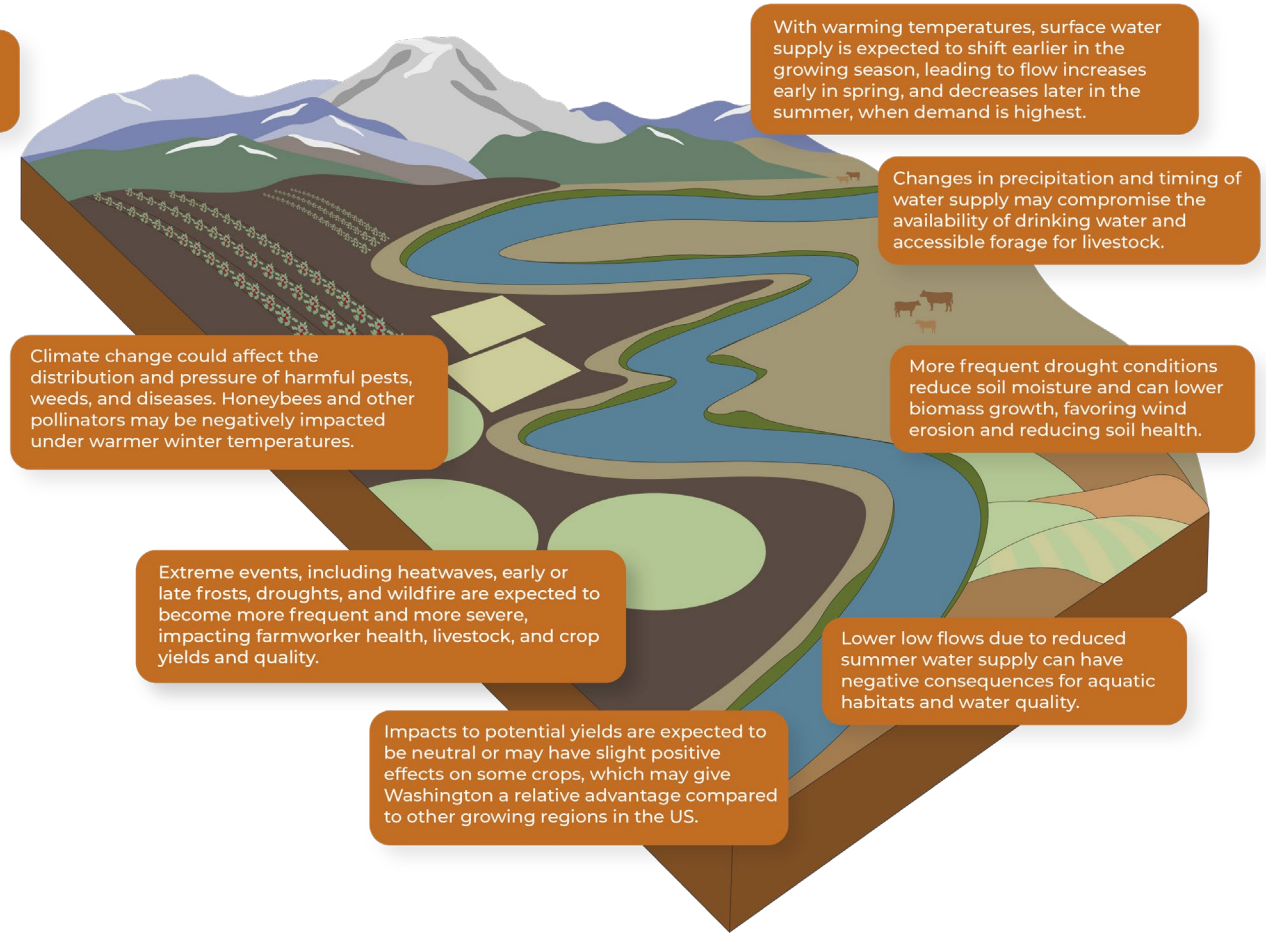

Bellingham
NORTHERN
CASCADES
OKANOGAN
HIGHLANDS
PUGET
LOWLAND
Port Angeles
OLYMPIC
MOUNTAINS
Everett
Seattle
Bremerton
Tacoma
Olympia
Wenatchee
PALOUSE
SLOPE
Spokane
Ritzville
Moses Lake
BASIN
Pullman
Hoquiam
Aberdeen
Ellensburg
WILLAPA
HILLS
Centralia
Chehalis
Yakima
YAKIMA
COLUMBIA
FOLD
BELT
Richland
Pasco
Kennewick
Walla Walla
BLUE
MTNS
SOUTHERN
CASCADES
Cathlamet
Kelso
Longview
PORTLAND
BASIN
Vancouver
Goldendale
Anticline
Fault
Intrusive Igneous Rocks
Tertiary
Mesozoic
Paleozoic
Metamorphic Rocks
Pre-Tertiary
Pre-Cretaceous
Paleozoic
Precambrian
Ultramafic rocks
Volcanic Rocks
Quaternary
Quaternary–Pliocene
Upper Tertiary
Upper Tertiary Columbia River Basalt Group
Lower Tertiary
Mesozoic
Sedimentary Rocks
Upper Tertiary
Lower Tertiary
Unconsolidated deposits
Quaternary sediment


SUGARBEETS
ELK
BULBS
BUCKWHEAT
BLACKBERRIES
BEDDING PLANT
ARTICHOKES
BOYSENBERRIES
EGGS
CARROTS
WOOL
DAIKON
WALNUTS
APRICOTS
HERBS
PUMPKINS
SHEEP
SQUASH
DUCKS
RASPBERRIES
PEARS
MILK
DILL
PARSLEY
CELERY
BEANS
RYE
ALPACAS
PEACHES
KIWIFRUIT
FLOWERS
GRAPES
EGGPLANT
HOGS
SORGHUM
MELONS
BEETS
MUSTARD
CRANBERRIES
PEPPERS
QUAIL
LENTILS
LLAMAS
CUCUMBERS
EMMER & SPELT
LEGUMES
LETTUCE
HAY
GRASSES
TOMATOES
BROCCOLI
WHEAT
CANOLA
HORSES
ONIONS
AQUACULTURE
SUNFLOWER
HONEY
AQUATIC PLANTS
HORSERADISH
VEGETABLE SEEDS
MINT
NECTARINES
CABBAGE
HOPS
RHUBARB
SOD
CATTLE
TURNIPS
SPINACH
FIGS
GOATS
RADISHES
SWEET CORN
APPLES
LOGANBERRIES
BLUEBERRIES
GARLIC
CHRISTMAS TREES
HAZELNUTS
BARLEY
STRAWBERRIES
BRUSSELS SPROUTS
CORN
RABBITS
PLUMS
POTATOES
MAPLE SYRUP
CHERRIES
CURRANTS
GEESE
POPCORN
PEAS
BISON
OATS
EMUS
ASPARAGUS
CHICKENS
TURKEYS
SOYBEANS
TRITICALE
MUSHROOMS
ESCAROLE & ENDIVE
CAULIFLOWER
WSDA
Washington
State Department of
Agriculture

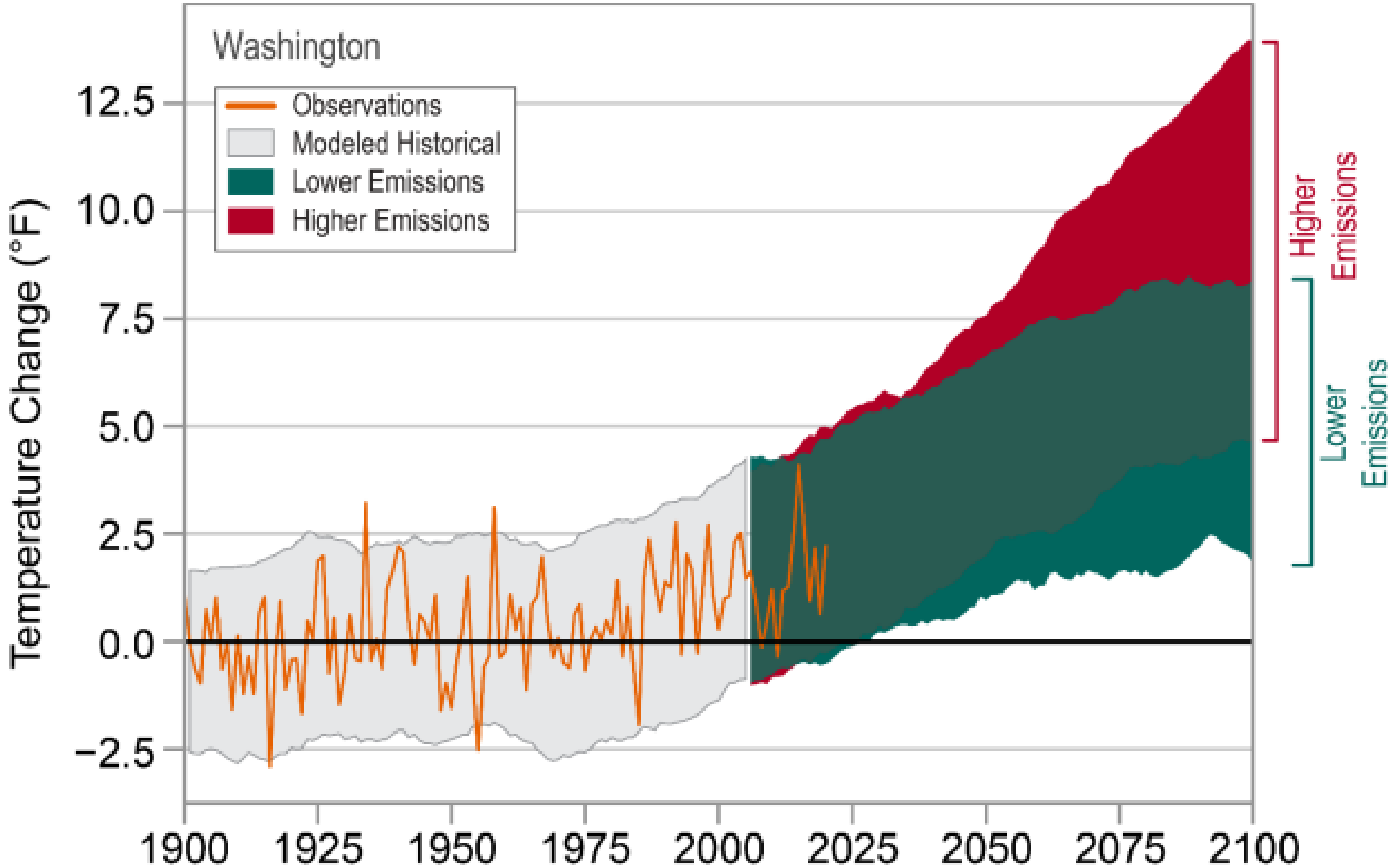
IMPACTS WEST OF THE CASCADES



IMPACTS EAST OF THE CASCADES

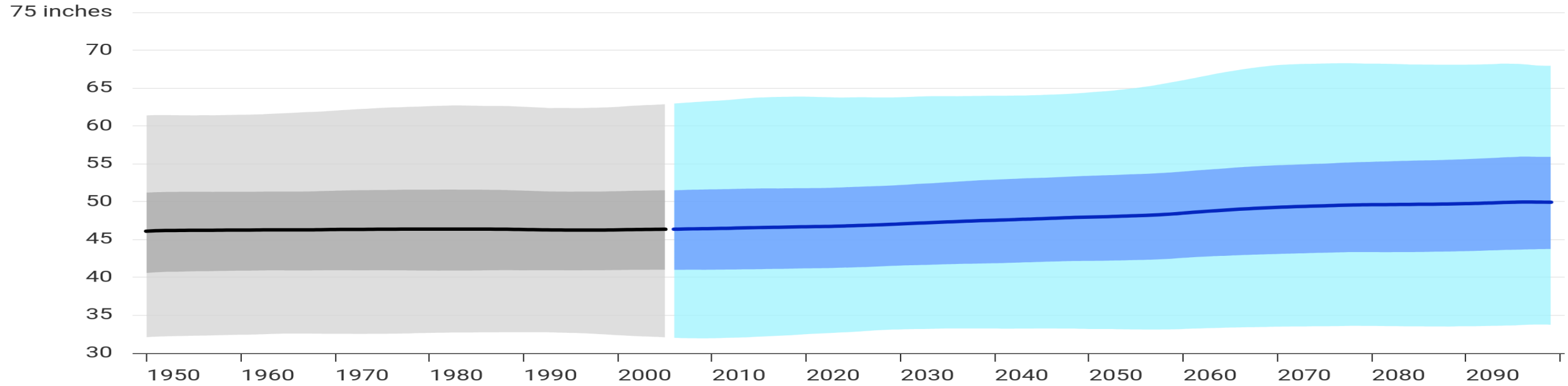


Credit: Katie Doonan, WSU

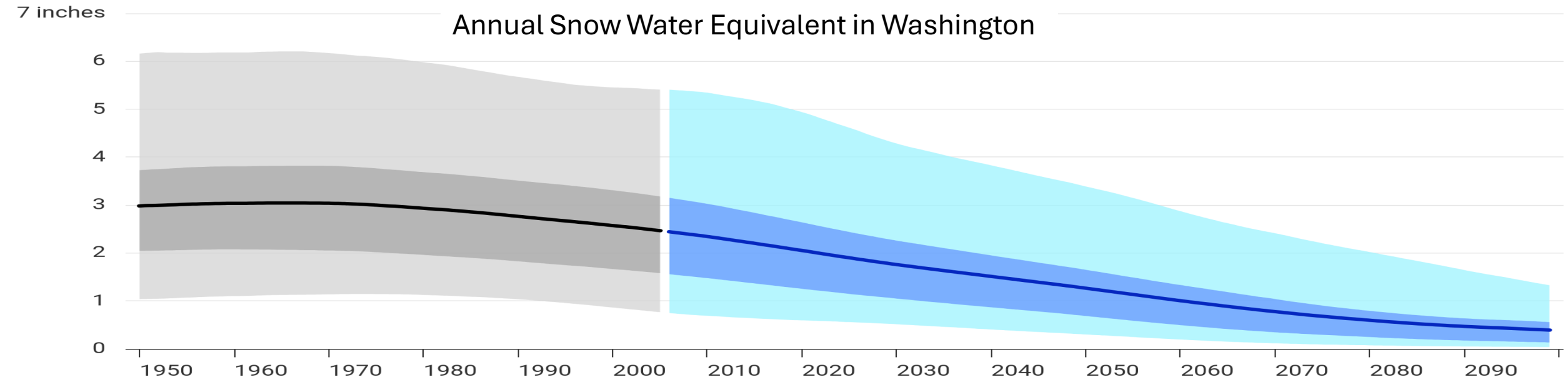


Washington State Enhanced Hazard Mitigation Plan (2023)

Annual Precipitation in Washington



Annual Snow Water Equivalent in Washington



Historic Avg.
Historic Range
Historic Quartile Range
Higher Emissions (RCP 8.5) Avg.
Higher Emissions (RCP 8.5) Range
Higher Emissions (RCP 8.5) Quartile Range

https://climatetoolbox.org/tool/Future-Time-Series

400+ farmers and 200+ farmworkers told us about on-farm challenges, solutions, and what help is needed most.

Leslie Michel, WSDA

Leslie Michel, WSDA

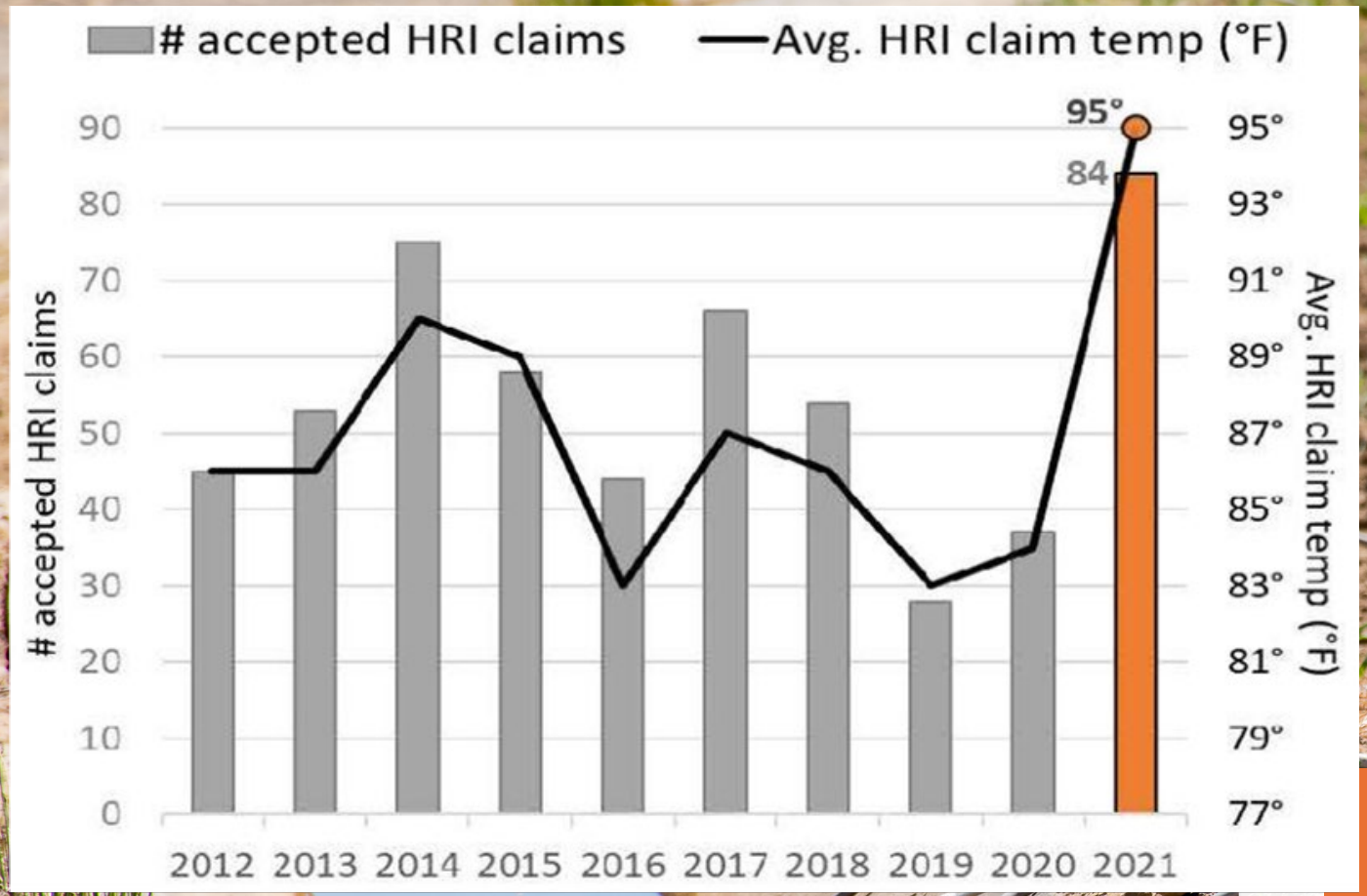
2021

Drought reduces wheat yields by 40%

2021

Heatwave kills shellfish across the coast

www.dailymail.co.uk/sciencetech/article-9750653/Clams-Washington-state-beach-cooked-death-heatwave.html



2021

Heat-related illness claims spike

https://lni.wa.gov/safety-health/safety-research/files/2023/105_01_2023_HRI_Claims_2021.pdf

cnn.com/2021/07/14/weather/oregon-washington-wildfires/index.html

2021

Wildfires burn 674,000 acres

https://www.dairyherd.com/news/education/dairy-report-hundreds-dairy-cattle-perish-due-floods-farmers-still-recovering

2021

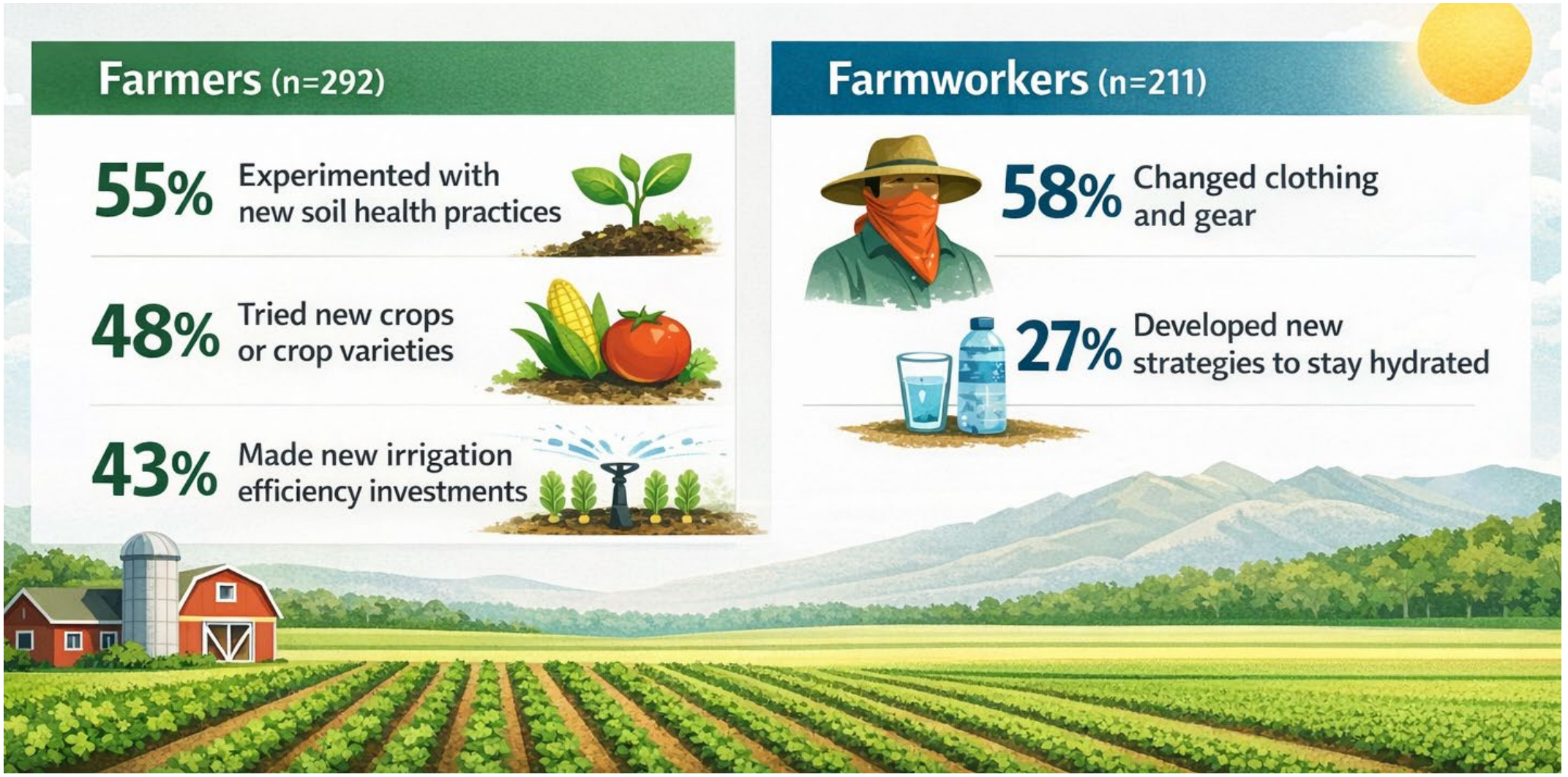
Flooding drowns livestock animals

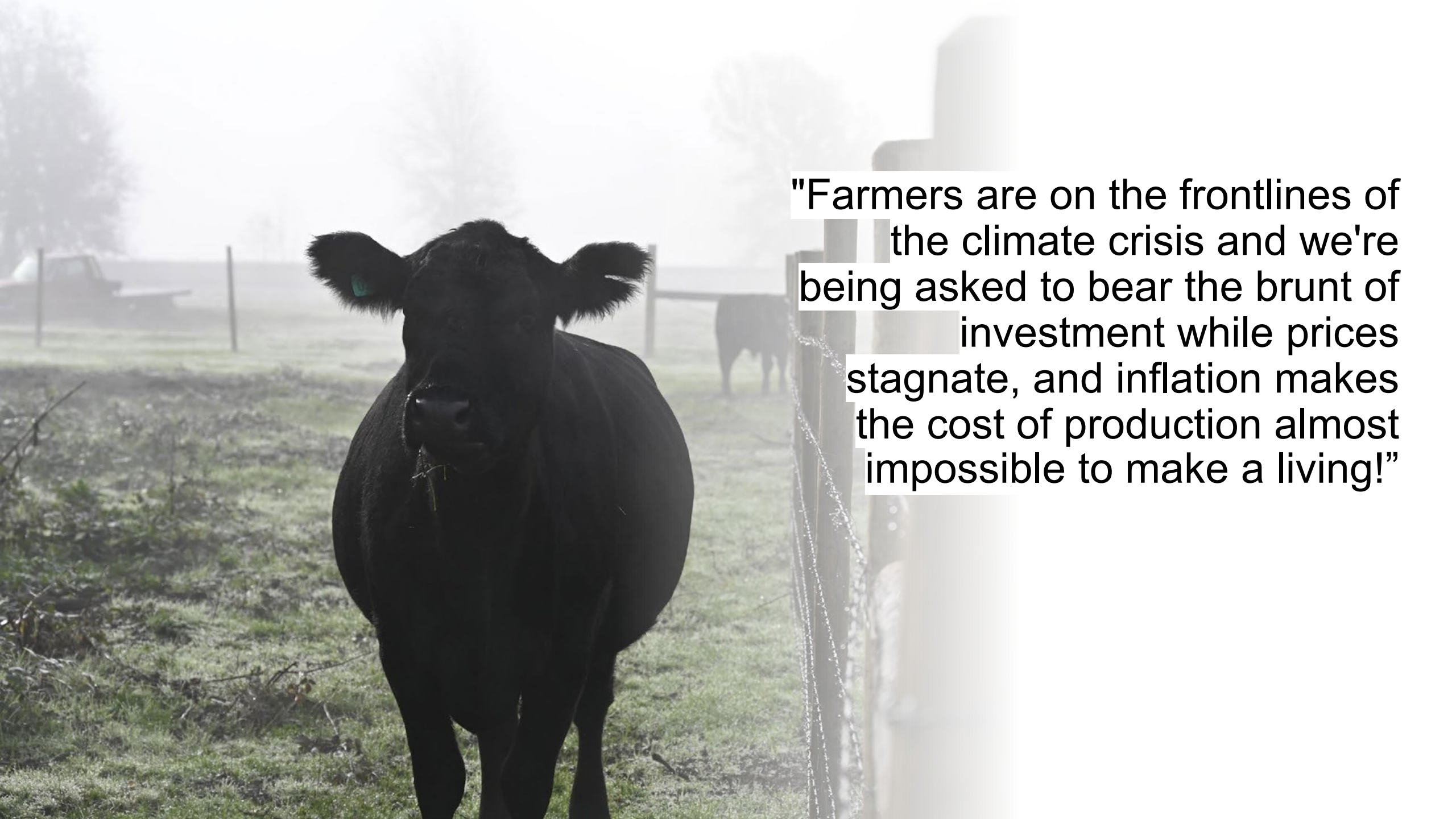
With strategic focus and funding, Washington agriculture can thrive through these challenges.

- Geographic advantages
- State climate funding
- Diverse crop production
- Strong partnerships

Leslie Michel, WSDA

Adaptation is under way, but more support is needed.





"Farmers are on the frontlines of the climate crisis and we're being asked to bear the brunt of investment while prices stagnate, and inflation makes the cost of production almost impossible to make a living!”

GOAL 1

Increase agriculture's preparedness for, response to, and recovery from climate-related extreme events

GOAL 2

Support the adoption of climate-resilient agricultural practices

GOAL 3

Safeguard a sufficient quantity of high-quality surface and groundwater for people, farms, and aquatic ecosystems

GOAL 4

Prepare the agricultural workforce for a changing climate

GOAL 5

Minimize impacts from pests, weeds, and disease

GOAL 6

Ensure that laws, policies, and regulations efficiently work towards climate-resilience and agricultural viability

CLIMATE RESILIENCE FOR WASHINGTON AGRICULTURE

Leslie Michel, WSDA

agr.wa.gov/ClimateResilienceWaAg

Dani G. | dani.gelardi@agr.wa.gov