2021 Drought and Heat Impacts to Agriculture

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WA Agriculture

Rich soils, diverse climates and large-scale irrigation make Washington State one of the most productive agricultural regions in the world

- Over 300 crops produced
- Variety of climates and growing regions
- Value of production $9.49 Billion
- Agriculture and food processing provide over 160,000 jobs
Wheat and Barley Impacts

- Lack of spring rains and low soil moisture

- Wheat Yield Reductions
  - 5 Year Average: 152.2 million bushels
  - 2021 Production: 87.18 million bushels

- Quality Reductions

- Barley Yield Reductions
  - 5 Year Average: 6.2 million bushels
  - 2021 Production: 2.7 million bushels
Pulse Crops

- Peas
  - 5 year average: 2280 lb/acre
  - 2021: 1200 lb/acre

- Lentils
  - 5 year average: 1190 lb/acre
  - 2021: 920 lb/acre

- Garbanzos
  - 5 year average: 1656 lb/acre
  - 2021: 680 lb/acre
Livestock

- Reduced yields in dryland hay
- Forage pasture
- Feed availability and cost
- Stock water supplies
Heat Impacts

- Increased irrigation demand
- Quality impacts
- Animal stress
- Berries
- Tree fruit

Photo Credit: Roza Irrigation District
Heat Impacts- Potatoes

- Potatoes stop growing above 90-95 degrees
- Yield impacts varied regionally—average of 10% reduction
- Quality Impacts
  - Mis-shaped potatoes
  - Sprouting
  - Storage concerns

Photo Credit: WA Potato Commission
Economic Drought Assessment Tool

- Funded by Ecology OCR
- Developed by UC Merced
- Several stakeholders involved
- Macro scale analysis

Crop Input Data
- Prices
- Yields
- Costs
- Land use
- Water use
- Labor Supplies

Water Supply Scenarios

Agricultural Production Model (Calibrated)

Change in Crop Revenues

IMPLAN Input-Output

Multiplier Effects: Revenues
Value Added
Employment

Revenues
Cropping Patterns
Water Use
Questions?