➤ Types of Irrigation

➤ Physical Demands

➤ Potential Modifications

➤ Special Considerations with Irrigation
Types of Irrigation

- Surface (Flood -- Basin, Furrow, Uncontrolled)
- Sprinkler (Spray)
- Drip (Micro, Subsurface)

Surface Irrigation

- Water is diverted from a ditch or pipe to flow over the field, either covering the entire field (basin/uncontrolled irrigation) or in trenches (furrow irrigation).

- Used primarily with field crops

- Extremely labor intensive

- Assumes at least 50% water loss due to evaporation, runoff, etc.
Surface Irrigation Methods

Water Source:
- Canal/Ditch (unlined, lined, covered/piped)
- Groundwater wells

Application of Water to Field:
- Open flood
- Furrows
  - Siphon tubes
  - Gated pipe
Surface Irrigation Tasks

- Setting Dams
- Moving Pipe
- Gates
  - Opening
  - Closing
  - Cleaning
- Canal Maintenance
- Field/Furrow Maintenance
Surface Irrigation Physical Demands

Flood Irrigation – Setting a Dam
https://www.youtube.com/watch?v=pMa4xpJijDw
Surface Irrigation Physical Demands

- Bending/Stooping
- Lifting
- Carrying
- Shoveling
- Balance
- Walking
- Slippery/Uneven Ground
Surface Irrigation Modifications

- Improve Leverage for Opening/Closing Gates
- Add Handles or Use Tools to Reduce Bending
- Add Walkways
- Reduce Walking/Carrying with Mobility Devices
- Upgrade Irrigation System
Sprinkler Irrigation

- Water is sprayed or sprinkled through the air like raindrops onto crops.
- Used with field crops and other types of production.
- Labor demands vary with method.
- Assumes up to 35% water loss due to evaporation.
Sprinkler Irrigation Methods

- Pods
- Guns/Jets
- Hand lines
- Wheel lines
- Center Pivot
- Lateral Move Pivot
Sprinkler Irrigation Tasks

- Moving Irrigation Equipment
- Attaching/Detaching Water Source
- Opening/Closing Gates/Valves
- Equipment Maintenance/Troubleshooting
- Equipment Assembly
Sprinkler Irrigation Physical Demands

Sprinkler Irrigation – Moving a Wheel Line
https://www.youtube.com/watch?v=RlwZgAlFIh4
Sprinkler Irrigation Physical Demands

- Carrying
- Balance
- Walking
- Lifting/Pulling
- Bending/Stooping
- Upper Body Strength
- Slippery/Uneven Ground
Sprinkler Irrigation Modifications

- Improve Leverage for Opening/Closing Gates/Valves
- Push Bars on Vehicle to Move Equipment
- Add Movers (Remote Start)
- Reduce Walking/Carrying with Mobility Devices
- Upgrade Irrigation System
Drip Irrigation

- Water delivered through pipes directly to plant roots.
- Useful for vegetable or orchard production
- Labor intensive at start up and in maintenance; more expensive than other systems
- More efficient than flood or sprinkler systems (80-95%)
Filtration System with Drip Lines
Drip Irrigation Tasks

- Design and Set Up System
- Monitoring System/Cleaning Filters
- Opening Closing Valves
- Equipment Maintenance
- Equipment Assembly
Drip Irrigation Physical Demands

Drip Irrigation System in Onion Field
https://www.youtube.com/watch?v=it8EJw7cGnk

Drip Irrigation System in Orchard
https://www.youtube.com/watch?v=hlQnQgcFujE
Drip Irrigation Physical Demands

- Carrying
- Balance
- Walking
- Lifting/Pulling
- Bending/Stooping
- Fine Motor Movement
- Uneven Ground
Drip Irrigation Modifications

- Improve Leverage for Opening/Closing Valves
- Ergonomic Tools for Fine Motor Activities
- Reduce Walking/Carrying with Mobility Devices
- Reduce Bending/Stooping with Seating
Irrigation Considerations

- Water Sources
- Water Rights
- Working with Natural Resources
  Conservation Service (NRCS)
  - National Water Quality Initiative (MWQI)
  - EQIP grants
Contact Information

Program Coordinator: Anne Brown-Reither  
(435) 797-0350  
anne.reither@usu.edu

Resource Facilitator: Connor Dyreng  
(435) 851-6182  
connord@allieswithfamilies.org

Program Director: Rhonda Miller  
(435) 797-3772  
rhonda.miller@usu.edu