

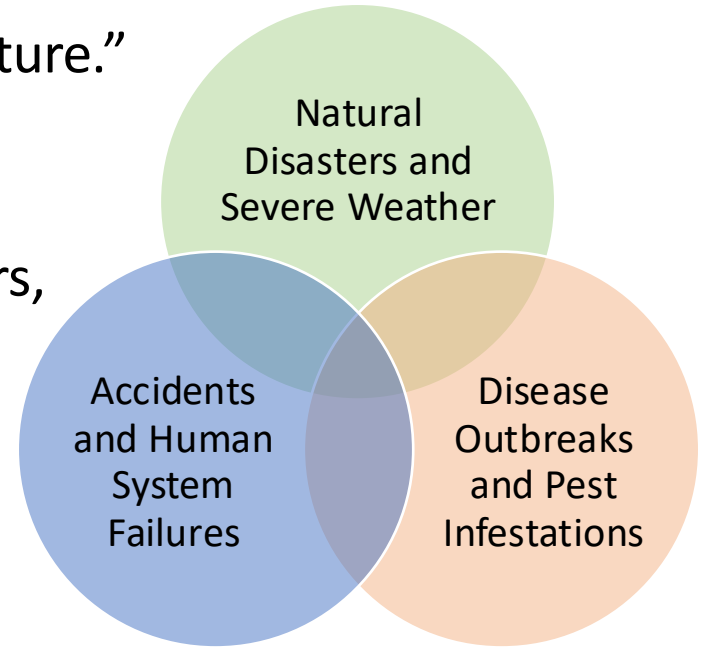
Extreme Weather and Climate: Realistic Hazards to Local Planning

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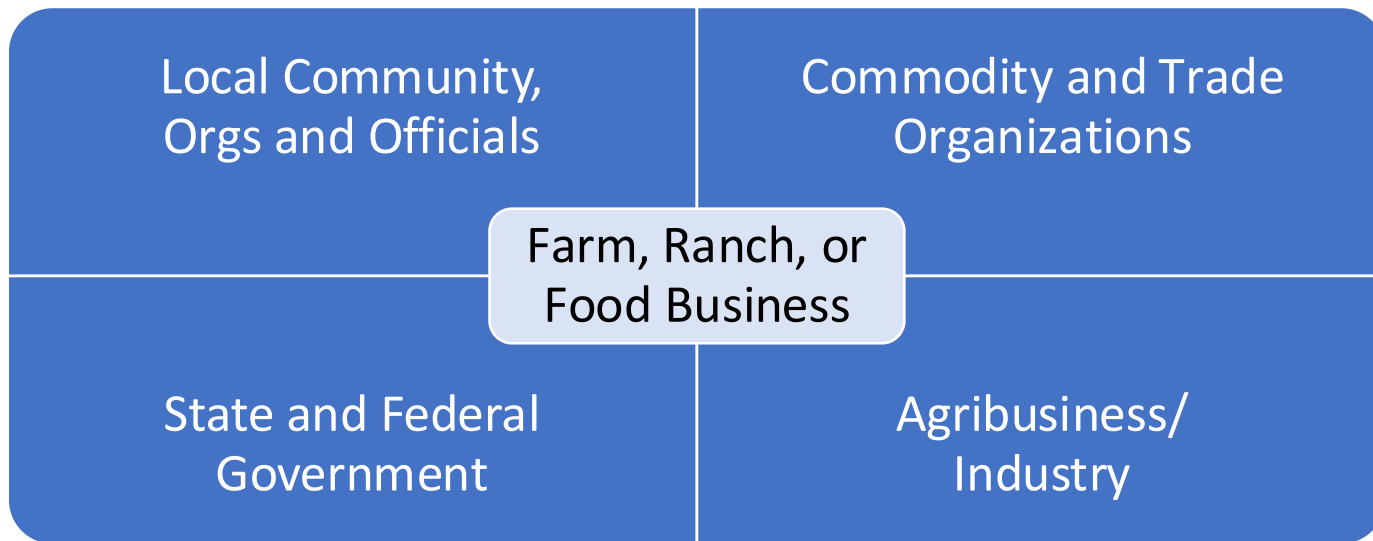
Protecting Critical Infrastructure

- “Agri-food systems are critical infrastructure.”
- DHS
- **Farms***, processors, distributors, retailers, institutions, supply chain partners...



*farms, ranches, aquaculture facilities, orchards, nurseries...

Domains of Agri-food Emergency Preparedness



Where does Extension have influence and resources?

Big Picture to On-farm Concerns

Extreme Weather and Climate Variability

Drought

Warmer Wetter
Winters

Severe
Precipitation

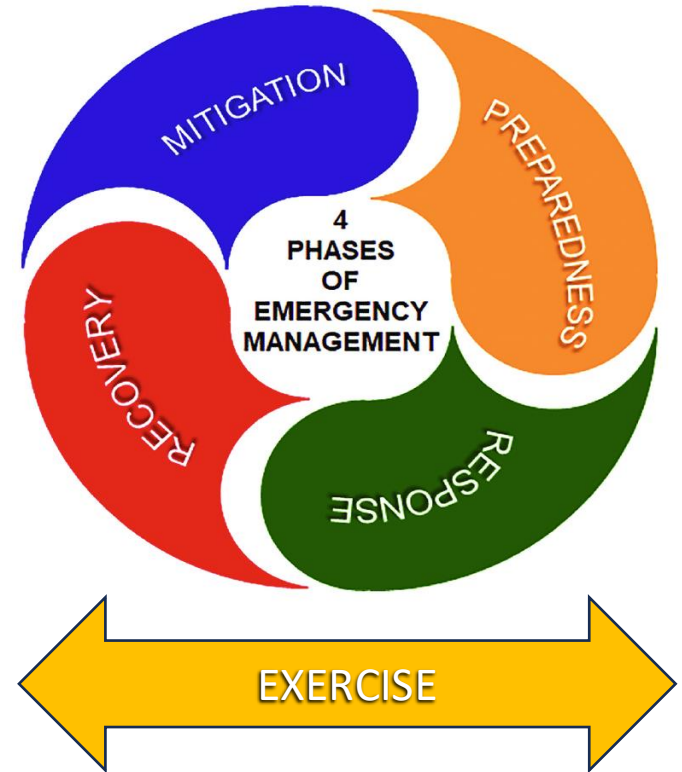
Crop Failure, Heat
Stress, and Fire

New Pest and
Disease Dynamics

Flooding, Failed
Infrastructure...

Emergency Management Cycle

- **Mitigation**
- **Preparedness**
- **Response**
- **Recovery**
- **And Exercise!**



Focus on Mitigation and Preparedness

- Mitigation reduces negative impacts during disaster.
 - Biosecurity practices and monitoring of plants and animals
 - Emergency animal feedstores; “Hay Hotlines” & “Grass Banks”
 - Emergency power
 - Conservation and long-term soil health practices
- Preparedness supports structured timely response and recovery.
 - Farm and community plans (realistic hazards and capabilities-based)
 - Farm and community physical and human resources
 - Actions with steps (operating procedures)

Realistic Hazards Approach

- Farm/Community/Regionally-Based Questions
 - What severe weather events are probable?
 - What natural disasters are possible?
 - What crop and animal pests or diseases are regionally endemic?
 - What are realistic exposure routes to foreign diseases and pests?
 - What type of supply chain and infrastructure disruptions are possible?

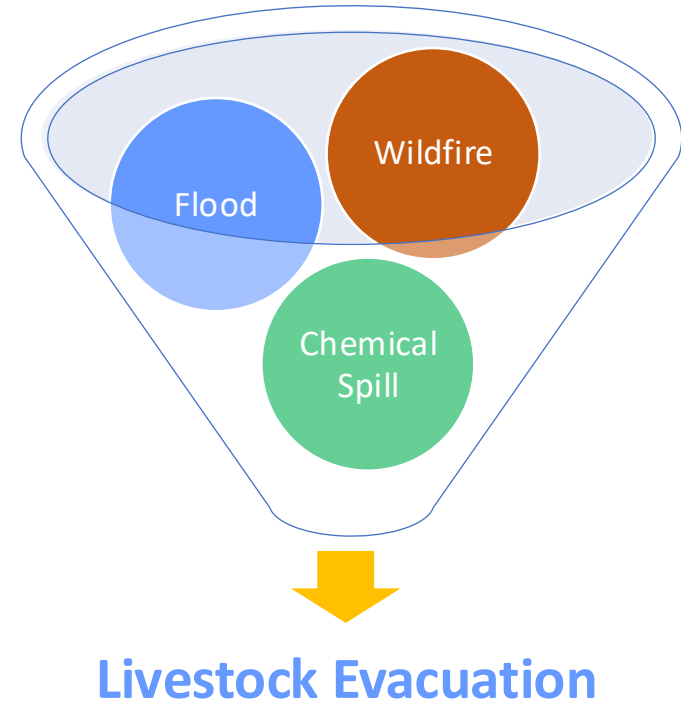
Planning Begins at the Local Level

- Local Emergency Preparedness Committees (LEPCs)
 - ESF11 or Ag and Food Sector Subcommittees
 - County Extension
 - Farmers and ranchers
 - Local EMS, public health, and law enforcement
 - VOADs/COADs: Red Cross, food banks, animal rescues...
 - Local/regional agribusiness: CoOps and dealers, manufacturers, integrators, allied service providers

Capability-based Planning Example

Capability: livestock evacuation

- Overland
 - Handlers/riders
 - Horses & dogs
 - ATVs
- Trailered
 - Handlers
 - Chutes/panels
 - Trucks and trailers



Planning and Response Capabilities

- What response **capabilities** are feasible for:
 - Farms, agri-food businesses and households?
 - Local volunteer, NGO, and government resources?
 - Local... with neighboring MOUs/mutual aid?
 - State and/or Federal governments..?
 - Private industry..?
- Note: resources may be human, physical, or service-based

Where does local Extension fit in?

- Plan for emergencies and disasters with your farm, food, or allied business clientele to **protect**:
 - People – family, employees, and consumers
 - Property – real estate, structures, equipment, and tools
 - Production – crops, stock, consumable supplies, and services
- Introduce yourself to your county Emergency Manager
 - Join your Local Emergency Preparedness Committee (LEPC)
 - Join or start a local agri-food (ESF11) subcommittee

Extension attributes and resources

- Land Grant Universities well suited for planning and response
 - ANR, FCS, 4H, and CED – **Interdisciplinary!**
 - State faculty: may be technical subject matter experts
 - County faculty: program area expertise and soft skills
 - See illustration; plus, **fiscal** and **volunteer management**



Image credit: theladders.com

Extension help and resources



- Examples:
 - U of Vermont Disaster Education, Planning + Recovery Resources
 - Texas A&M Disaster Preparedness and Recovery
 - Penn State ReadyAG Workbook
 - Minnesota Extension Farm Emergency Action Plans
 - Perdue Extension IN-PREParred
- Extension Disaster Education Network (EDEN)
 - Network of Extension professionals working in disaster
 - Contacts in *most* U.S. states and territories
 - Resources, training, knowledge sharing, and support
 - <https://extensiondisaster.net>

Core tips from Minnesota Extension

- Communication (internal and external) is key to an emergency action plan for your farm.
- Create **maps** and list:
 - Access routes
 - Buildings
 - Shelter areas
 - Hazardous locations
- Reference related inventories



Core tips from Minnesota Extension

- Make a full **emergency contact list** available to everyone on the farm.
- Review coverage and risks with your insurance provider.
- Compose action plans for several possible farm emergencies.
 - Review internally with employees and family.
 - Review externally with fire department/ER



Thank you

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