

# Southeast Agriculture Adaption Workbook: A Hands-On Tool for Extension Agents, Land Managers, and Grower

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**John Lee**

**Conservation Agronomist**

**Natural Resources Conservation Service**

**[john.lee@ar.usda.gov](mailto:john.lee@ar.usda.gov)**

# Climate Change and Agriculture

Climate change and agriculture are interrelated processes, both of which take place on a global scale.

- Climate change affects agriculture in a number of ways, including through changes in:
  - average temperatures,
  - rainfall,
  - and climate extremes (e.g., heat waves);
  - changes in pests and diseases;
  - changes in atmospheric carbon dioxide and ground-level ozone concentrations;
  - changes in the nutritional quality of some foods;

Hoffmann, U., Section B: Agriculture - a key driver and a major victim of global warming, in: Lead Article, in: Chapter 1, in [Hoffmann 2013](#), pp. 3, 5

# Climate Change and Agriculture?

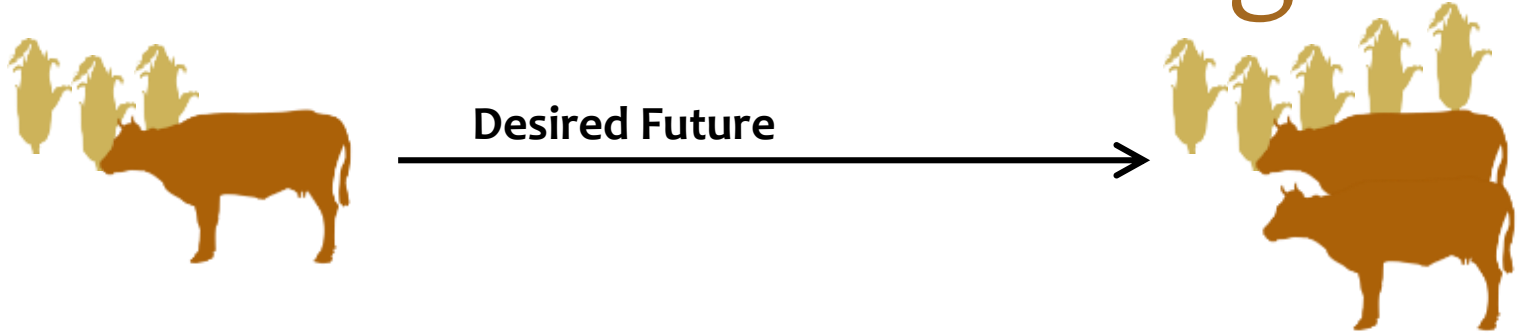
Discussions about climate change and agriculture have been slow to develop because of:

- **Politics**
- **Lack of Education**
- **Resistance**
- **Not understanding the impacts**
- **Complexities of Climate Change**

# Climate Change and Adoption!

- Climate change adaptations can help to reduce the risks from climate variability and change, increase the resilience of systems to potential disruptions, and even alter systems to be better able to take advantage of future conditions.
  
- Smit et al. 1999, Parry et al. 2007

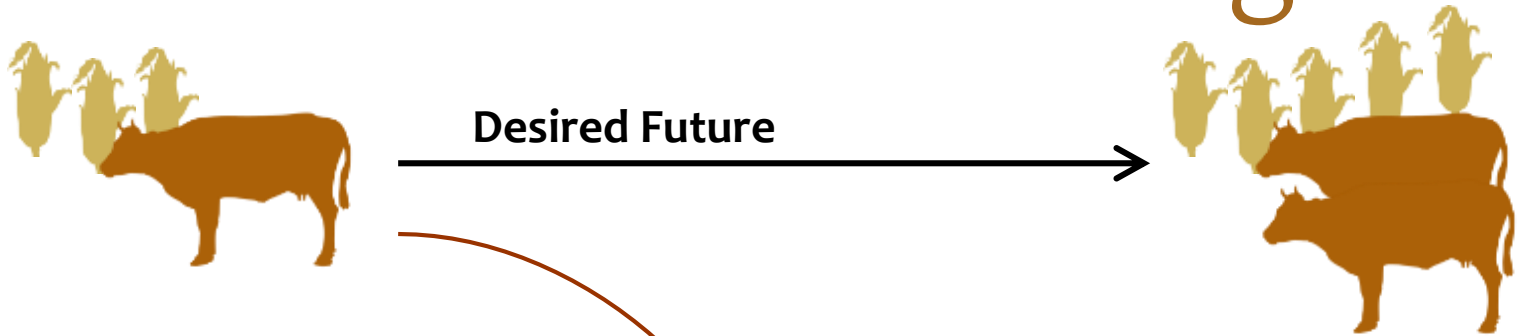
# Climate-Driven Changes



TIME



# Climate-Driven Changes



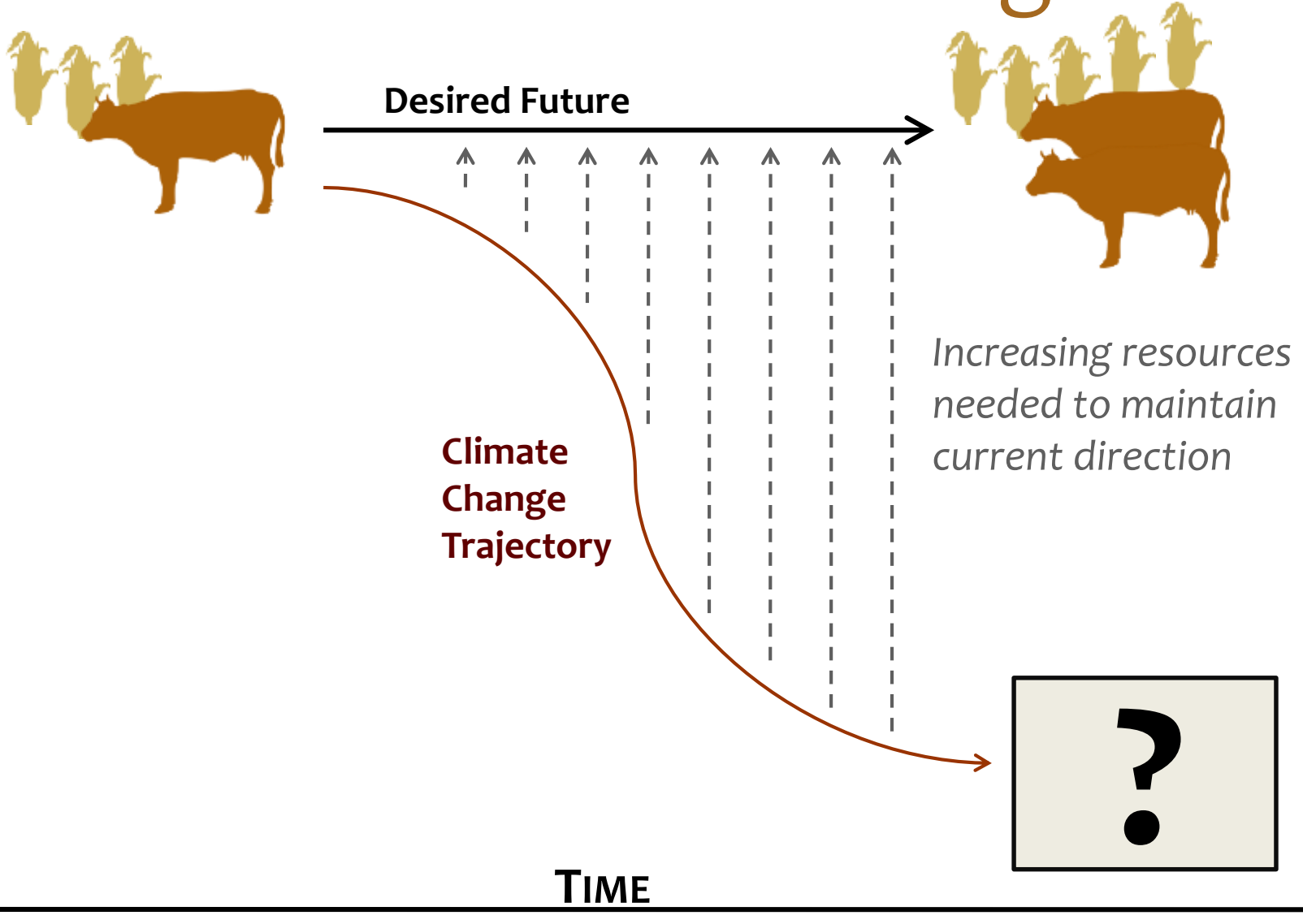
Climate  
Change  
Trajectory



TIME



# Climate-Driven Changes



# Adaptation

Adaptation is the adjustment of systems in response to climate change.

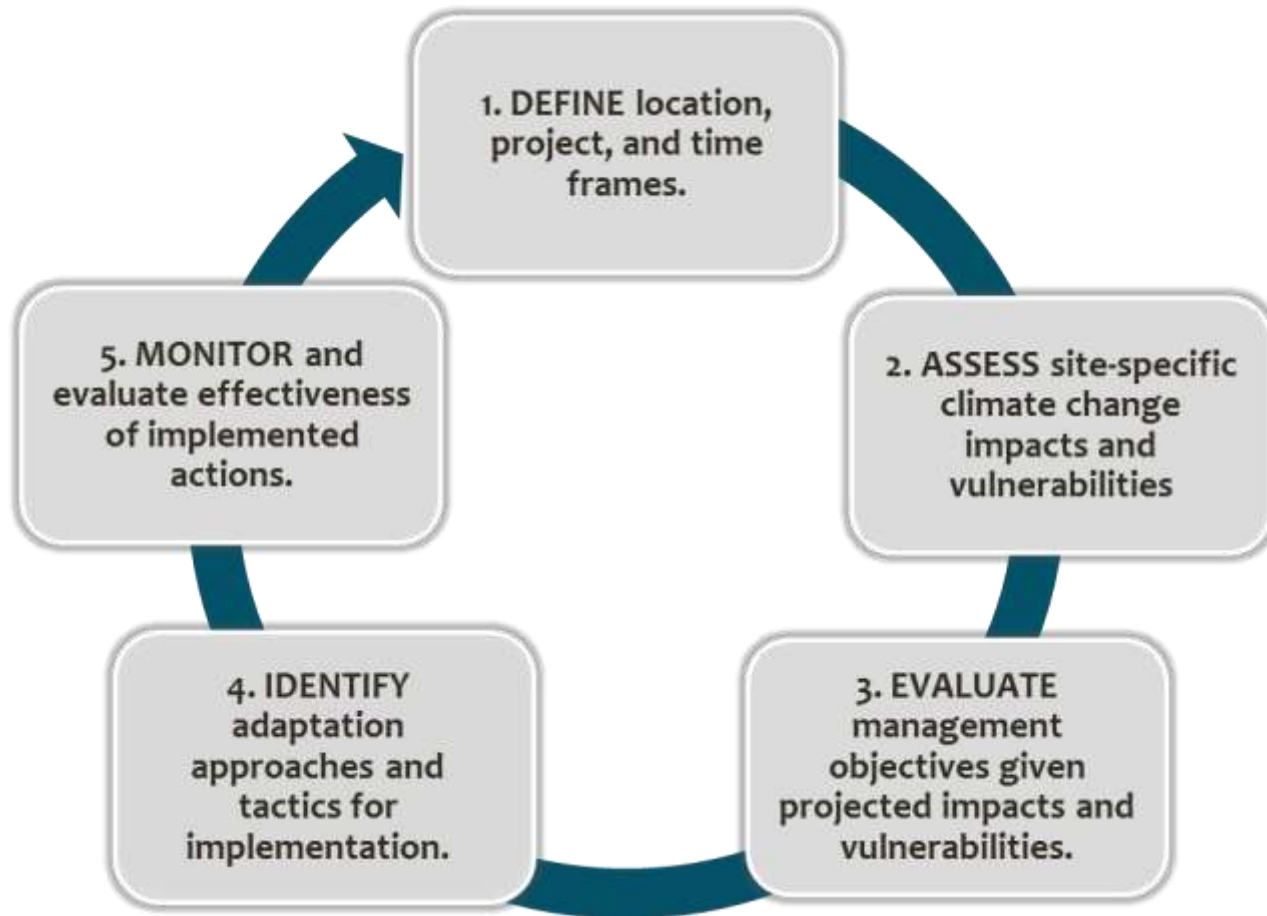
Adaptation activities can build on and compliment existing **sustainable management** and **conservation** actions





What actions can be taken to  
**enhance the ability of a system to  
cope with change**  
*and*  
**meet goals and objectives?**

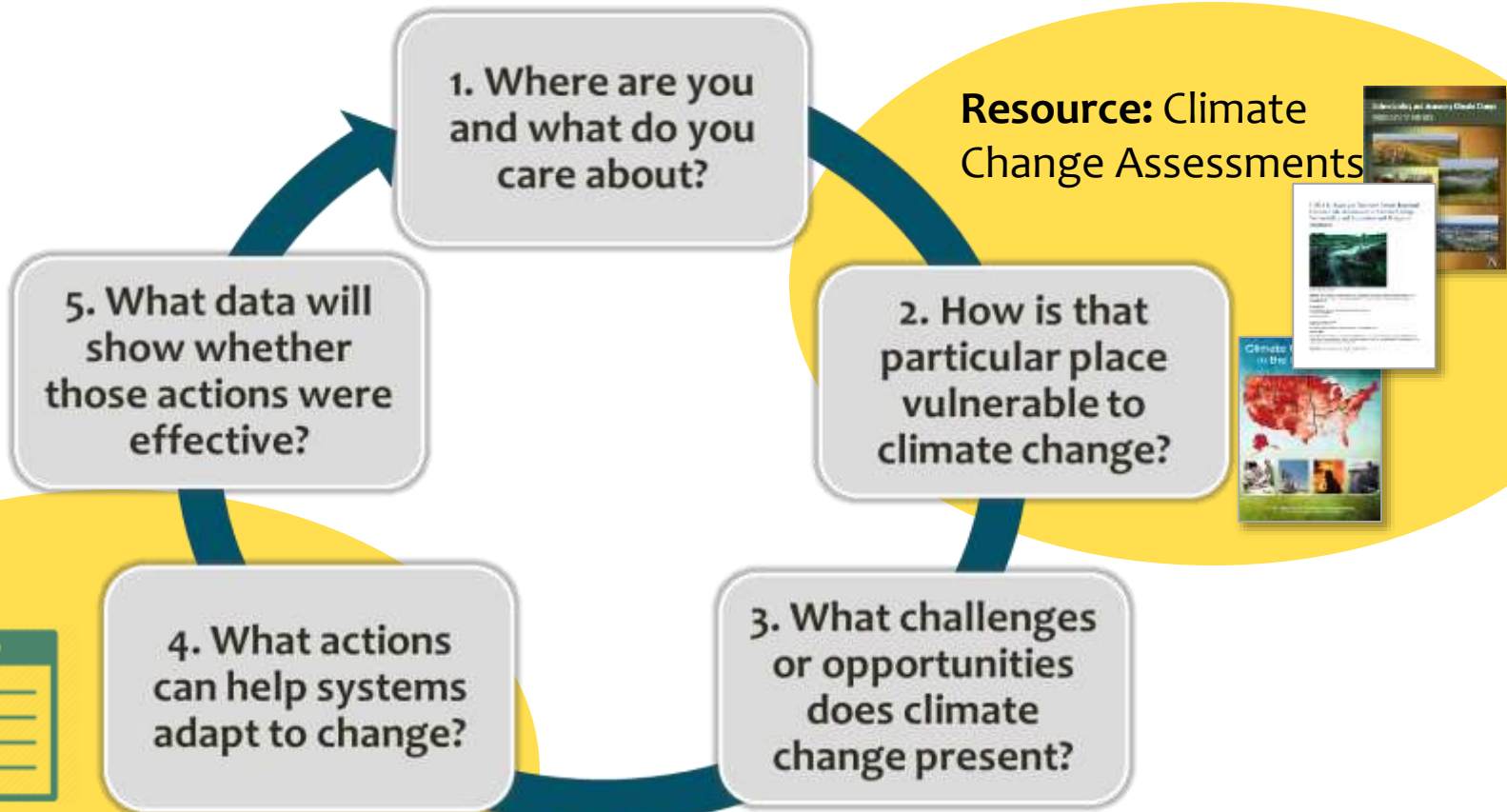
# Adaptation Workbook Process



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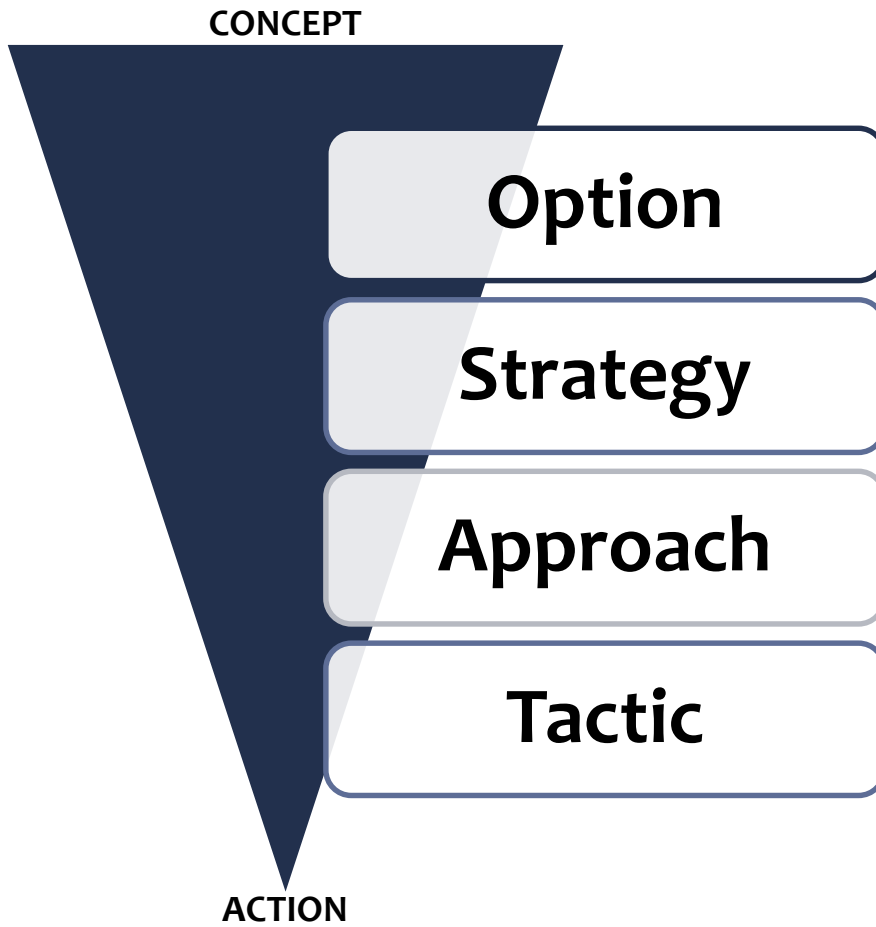
# Adaptation Strategies and Approaches

Provides a **menu** to help producers translate broad concepts to specific, implementable tactics

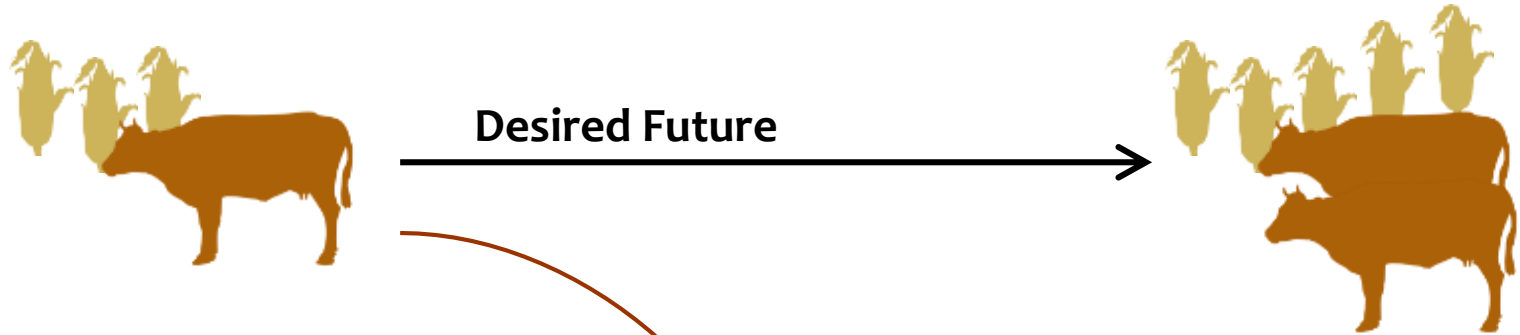
Shows your **rationale** for deciding on a specific action



# Adaptation Strategies and Approaches



# Persistence or change?



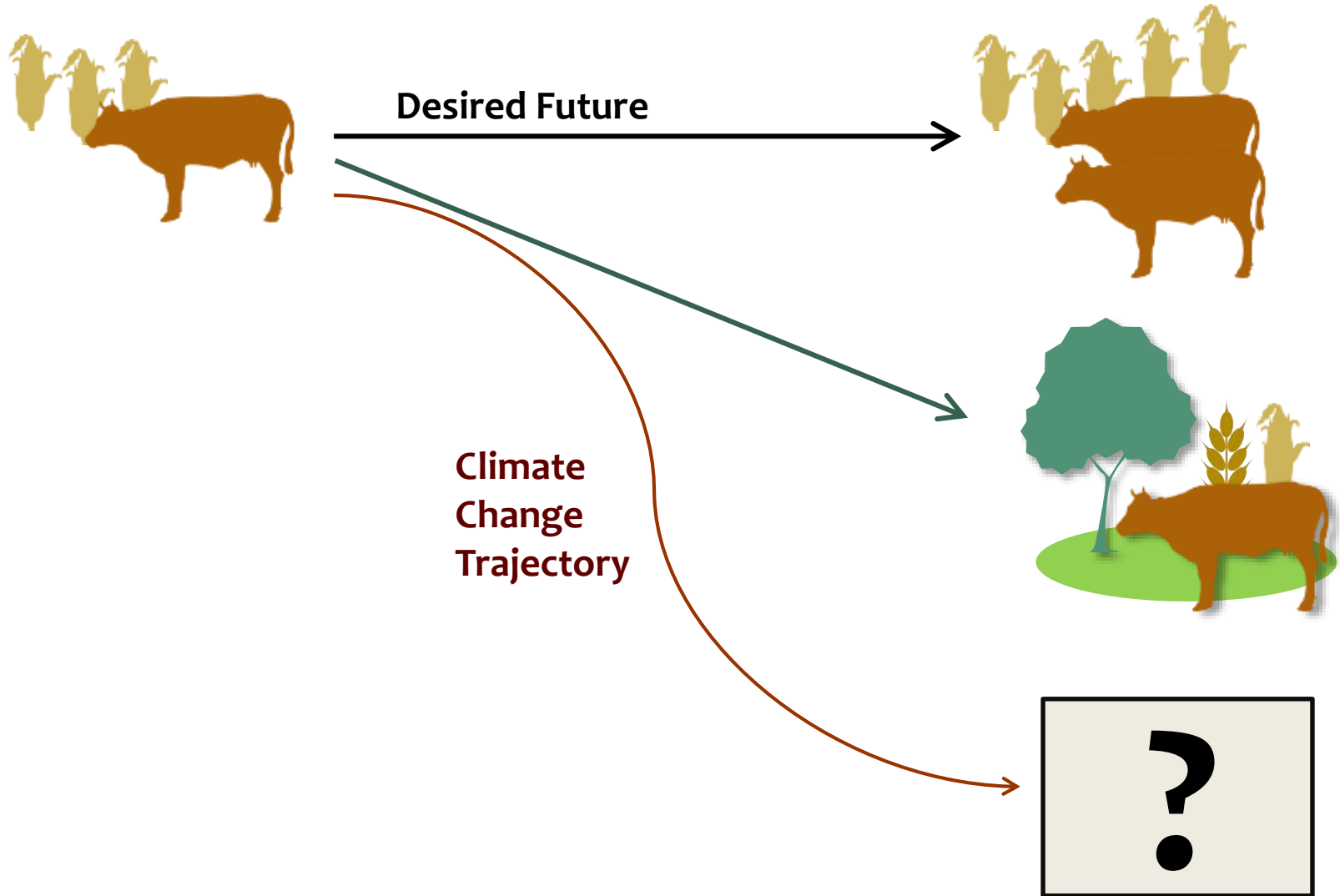
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TIME



# Persistence or change?

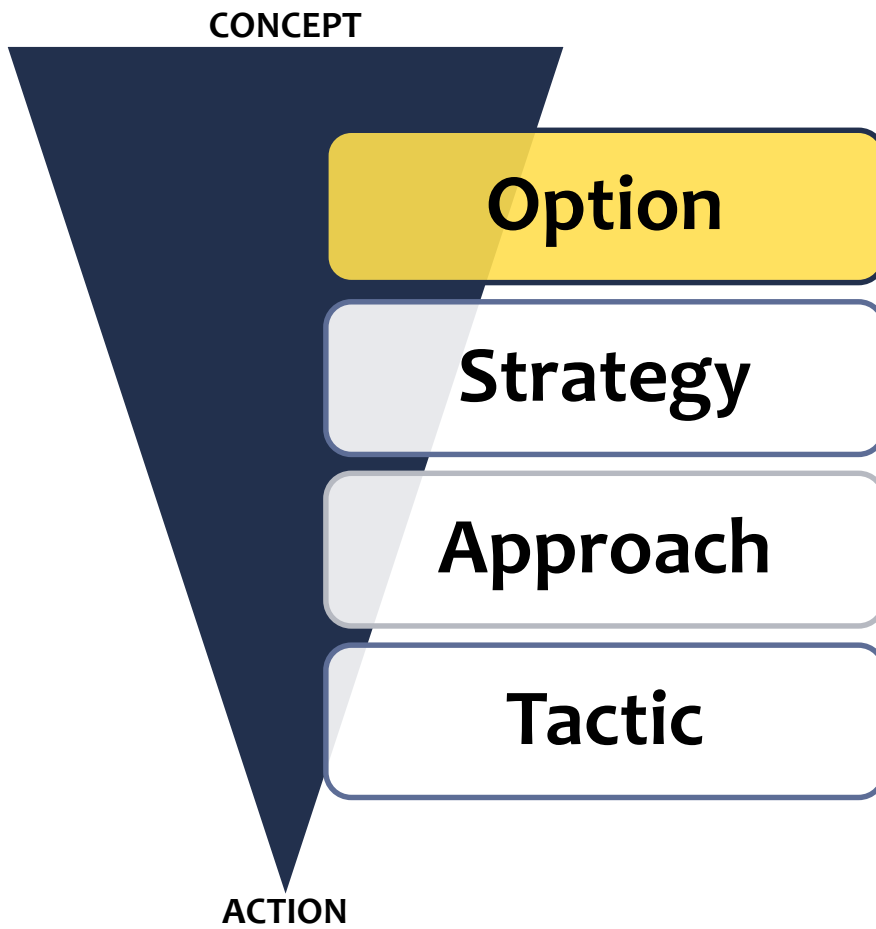


TIME





# Adaptation Strategies and Approaches



**Manage for Change:**  
System fundamentally becomes something different



**Manage for Persistence:**  
Still be recognizable as being the same system

# When you might emphasize...

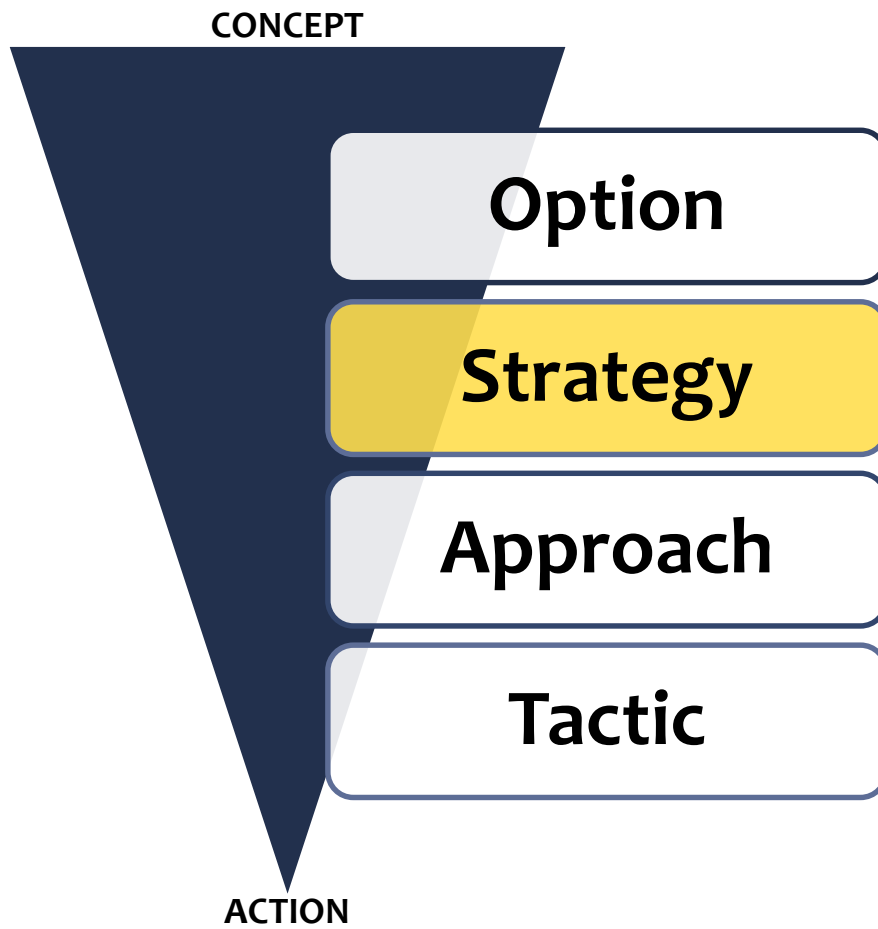
## Persistence (Same/Similar)

- High economic or social value associated with current condition
- Inherent ability to buffer changes
- Highly vulnerable, but place represents best chance of success

## Change (Future-adapted)

- High likelihood that current conditions will fail, making change is necessary
- Changes are already occurring, and can be enhanced
- Good opportunity to try something new

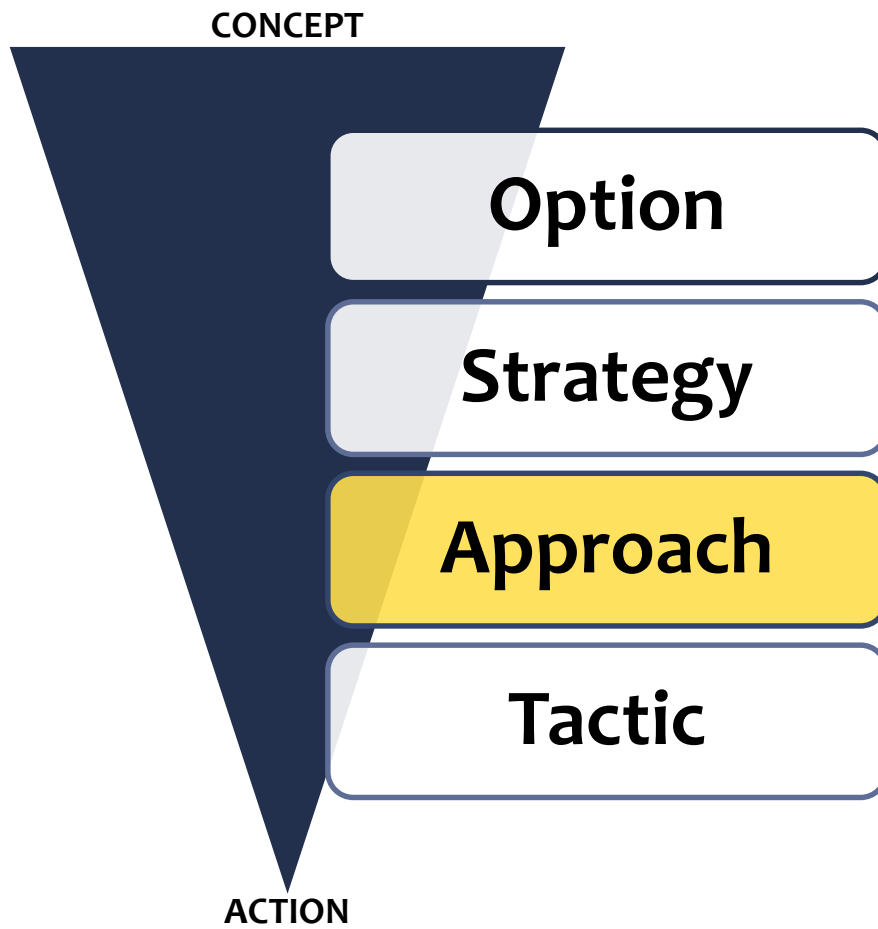
# Adaptation Strategies and Approaches



*Broad adaptation responses*

- *Sustain fundamental functions of soil and water.*
- *Reduce risks from warmer and drier conditions.*
- *Reduce the risk and long-term impacts of extreme weather.*
- *Alter management to accommodate expected future conditions.*

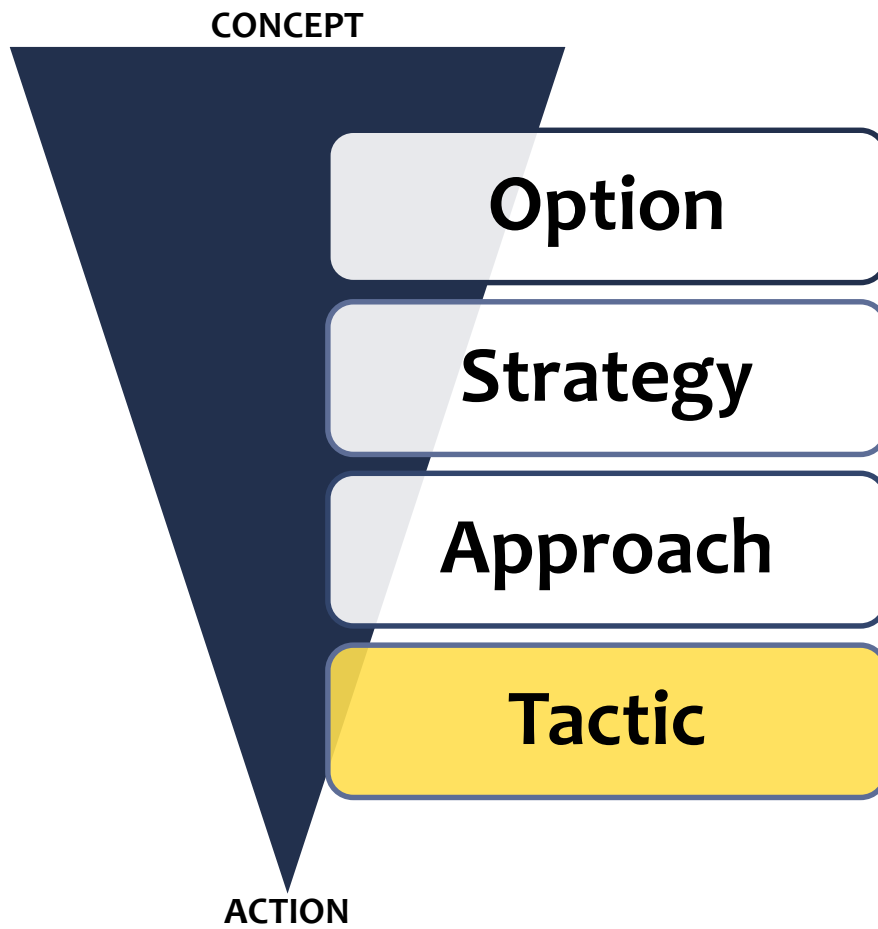
# Adaptation Strategies and Approaches



*More specific actions*

- *Diversify varieties, crops, breeds, or products.*
- *Establish or encourage new combinations of varieties or breeds.*
- *Switch to commodities expected to be better suited to future conditions.*

# Adaptation Strategies and Approaches



*Prescriptive actions selected by producer that are designed for individual site conditions and management objectives*

# Summary: There isn't a single answer

Each decision is unique and will vary based upon:

- **Place:** Location & Site Conditions
- **Purpose:** Goals & Objectives
- **People:** Values, Culture, & Resources

Adaptation resources help producers/managers make decisions (without telling them what do do)







**THANKS**

**QUESTIONS**

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Natural Resources Conservation Service  
USDA**

**John Lee  
State Agronomist  
USDA / NRCS**

**[john.lee@ar.usda.gov](mailto:john.lee@ar.usda.gov)**