

## Handout 7.3.6: CSA Goals

### **CSA Goals, Approaches, and Practices for Agriculture**

**CSA Goal**—The intent to improve adaptation, mitigation, and/or production of agricultural systems in response to climate change.

**CSA Approach**—A more specific aim to meet the CSA goals and to guide selection of CSA practices.

**CSA Practice**—On-the-ground activities or actions that supports the CSA goals and approaches.

#### **CSA Goal 1: Sustain fundamental functions of soil and water.**

##### **Approach 1.1: Maintain and improve soil health.**

- **Practices:**

- Conservation agriculture (Cover crops, Minimum tillage, Crop rotation, Mixed cropping)
- Manure application
- Ridge cultivation

##### **Approach 1.2: Protect water quality.**

- **Practices:**

- Appropriate use of inorganic fertilizers
- Direct or precision fertilizer application

##### **Approach 1.3: Match practices to water supply and demand.**

- **Practices:**

- Water conservation (pit cultivation, Chololo pits)
- Rain water harvesting
- Efficient irrigation

#### **CSA Goal 2: Reduce the impacts of biological stressors.**

##### **Approach 2.1: Reduce the impacts of pests and pathogens on crops.**

- **Practices:**

- Integrated Pest Management
- Use varieties and species resistant to pests and diseases
- Alter crop rotations

##### **Approach 2.2: Maintain livestock health and performance.**

- **Practices:**

- Feeding and manure management
- Prevent infectious disease and control parasites
- Pasture establishment



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- Zero or sustained site resting from grazing

## **CSA Goal 3: Reduce risks from warmer and drier conditions.**

### **Approach 3.1: Adjust the timing or location of on-farm activities.**

- **Practices:**

- Adjust timing of planting, such as earlier or later planting dates
- Adjust the timing of grazing and pasture use to forage availability for livestock

### **Approach 3.2: Manage crops to cope with warmer and drier conditions.**

- **Practices:**

- Use adapted crop varieties
- Irrigation efficiency
- Agroforestry to provide shade and reduce temperature

### **Approach 3.3: Manage livestock to cope with warmer and drier conditions.**

- **Practices:**

- Provide partial to total shelter to reduce heat stress associated with extreme heat
- Select more heat tolerant breeds
- Zero or sustain resting from grazing
- Pasture establishment

## **CSA goal 4: Alter management to accommodate expected future conditions.**

### **Approach 4.1: Diversify crop or livestock species, varieties or breeds, or products.**

- **Practices:**

- Add additional farming activities or new commodities
- Increase diversity of varieties and breeds able to withstand hotter and drier conditions
- Use appropriate fish and fingerling species

### **Approach 4.2: Diversify existing systems with new combinations of varieties or breeds.**

- **Practices:**

- Plant multi-species cover crop mixtures, including species adapted to warmer climates
- Integrate livestock into cropping enterprises
- Diversify or expand farm production to include a greater number of annual crops perennial crops

### **Approach 4.3: Switch to commodities expected to be better suited to future conditions.**

- **Practices:**

- Use new cultivars and new species that seem to match a changing climate
- Shift to more water-efficient crops or cropping systems
- Switch to alternative livestock breeds, class, or species to those with a higher heat, drought and parasite tolerance

Adapted from: Janowiak, M., D. Dostie, M. Wilson, M. Kucera, R. Howard Skinner, J. Hatfield, D. Hollinger, and C. Swanston. 2016. Adaptation Resources for Agriculture: Responding to Climate Variability and Change in the Midwest and Northeast. Technical Bulletin 1944. Washington, DC: U.S. Department of Agriculture.

<https://www.climatehubs.oce.usda.gov/sites/default/files/AdaptationResourcesForAgriculture.pdf>