Agriculture – managing risk and enhancing resilience

Climate change poses significant risks for the agricultural sector and for global food security. Resilience to the impacts of a warming world will be enhanced by keeping the inevitable rise in average global temperature below certain key thresholds.

### Steps for Mitigation

Greenhouse gas (GHG) emissions from agriculture comprised about 10-12% of man-made GHG emissions in 2010. This is the largest contribution from any sector of non-carbon dioxide (CO₂) GHGs such as methane, accounting for 56% of non-CO₂ emissions in 2005. The agricultural sector has significant potential to make cuts in GHG emissions.

### Steps for Adaptation

Adaptation is highly context-specific, and no single approach for reducing risk is appropriate across all regions, sectors, and settings. Farmers can adapt to some changes, but there is a limit to what can be managed. Agricultural companies can draw from a range of options to maximise adaptive capacity.

### Policy Options

- Index-based weather insurance
- Risk-sharing and transfer mechanisms
- Public-private finance partnerships
- Payments for environmental services
- Improved resource pricing
- Trade reform

### Crop Options

- Improve resistance of crops to high temperature
- Develop additional drought-tolerant crop varieties
- Use adaptive water management techniques
- Alter cultivation and sowing times
- Improve crop rotation systems

### Livestock Options

- Match stocking rates with pasture production
- Adjust herd and water point management
- Use more suitable livestock breeds or species
- Manage livestock diet quality
- More effective use of vage, pasture spelling and rotation
- Monitor and manage the spread of pests, weeds and diseases

### Supply Side Options

- Improve feeding and dietary additives for livestock
- Improve agronomy, nutrient and fertilizer management for cereals
- Establish agro-forestry systems
- Replace fossil fuels by biofuels
- Integrate bioenergy production and food production

### Demand Side Options

- Reduce overconsumption in regions where it is prevalent
- Reduce loss and waste of food in supply chains
- Change diets towards less GHG-intensive food

### Adaptation capacity is projected to be constrained if average global temperature rises by 2°C or more.

Global temperature increases of 1°C or more, combined with rising food demand, would pose large risks to food security globally and regionally.

### Key Findings from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5)

- Greenhouse gas (GHG) emissions from agriculture are a major contributor to global warming.
- Resilience to climate change requires both mitigation and adaptation.
- Adapting to climate change involves adjustments to agricultural production systems and practices.
- Mitigation efforts should focus on reducing greenhouse gas emissions from agriculture.

For more information visit cisl.cimc.uk/ipcc and bsr.org

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**IMPLICATIONS FOR AGRICULTURE**